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*Illustrated.

The suggestion made by Mr. Basford in the address before the Burlington Association of Operating Officers, which is printed in another part of this issue, that the matter of selecting, training and promoting employees be placed in charge of an officer with full authority over these matters and reporting direct to the president of the railroad, appears to offer a simple and logical solution to a most troublesome problem. The methods outlined to be followed by such an officer are practical. Many railway officers are frank to admit that the proper selection and training of men is the most important problem now before the railroads. They are equally frank in admitting that something must be done immediately to improve the situation. Why not give the suggestions which are made a thorough trial?

Selecting and Training Employees

In the recent hearings in the western freight rate advance case, three accounting "experts" employed by the shippers and state railway commissions, and one employed by the Interstate Commerce Commission, sought to segregate the cost of handling various commodities, and by the use of different methods arrived at very different results. In the western passenger fare hearing at Chicago last week the same state commissions put on the stand one of the same "experts," who proceeded to enlighten the commission as to the cost of passenger service. He arrived at the conclusion that it costs less to earn a dollar in the passenger service than in the freight service; and he vouchsafed the information that he was "surprised himself" at the result. Then, on cross-examination it was brought out that in his analysis of the expenses of the Chicago & North Western he had adopted a basis of division in the *freight* rate case which showed the ratio of passenger expenses to revenue as 77 per cent, while in the *passenger* rate case he had used a basis which produced a passenger expense ratio of 72 per cent! In other words, in the zeal of his efforts to show that advances in either freight or passenger rates would be unreasonable, he had used a different method of "cost accounting" in the one case from what he had used in the other. The methods used by the railroads in dividing freight and passenger expenses in these cases at least had the merit of consistency because they used the same methods both times. If they redounded to the carriers' advantage in the freight case, by showing freight costs too high, then they worked to their disadvantage in the passenger case by showing the passenger proportion of the expenses as too low. Many hope that some method will eventually be worked out for correctly distributing the various expenses between the freight and passenger traffic. The state commissions and their "experts" are not helping the matter along by the use of such extraordinary means.

More "Expert" Cost Accounting

The question of the legality of the series of arbitrary measures which the postoffice department has adopted in recent years to compel the railways to handle increased quantities of mail without an increased, and even for a decreased, compensation, is to be finally settled, in the only way such a question can be settled—by a lawsuit. The New Haven, the Boston & Maine and some other New England roads have joined in a proceeding against the government in the Court of Claims for the recovery of an aggregate of $10,880,865. They allege this amount is due them mainly on the ground that under the system of quadrennial weighing they are not paid at all for handling the annual increment in the mails, and that they have been forced to handle the parcel post traffic without adequate compensation. It is gratifying that a group of railways finally has decided to appeal to the courts to ascertain what are the respective rights of the carriers and the postoffice department. For almost ten years successive postmaster-generals and Congress itself have dealt with the compensation of the railways for carrying the mails with an insolent and tyrannical arbitrariness which would have done credit to the bureaucracy of Russia. It is high time that it should be ascertained whether the Constitution and laws of the United States afford no protection to railway property against the attacks of government officials bent, for political purposes, on making a showing in the postoffice department at the expense of other people. Meantime, the question arises as to why railways should have to sue the government to determine their rights regarding compensation for carrying the mail, when the rates they may receive for carrying freight and passengers are determined by the Interstate Commerce Commission? Why should not the government submit the question of what rates it shall pay for transportation to the same body to which it requires the traveler and shipper to submit the question of what rates they shall pay?

Litigation Regarding Mail Pay

Damage Due to Rough Handling of Cars

Of the $32,375,000 paid by the Class I roads (those having annual revenues of more than $1,000,000) of this country for loss and damage to freight for the 12 months ended December 31, 1914, as reported in the *Railway Age Gazette* of July 16, 1915, page 90, over 13 per cent, or $4,343,481, was directly traceable to rough handling of cars. In other words, $2.18 of each $1,000 of total freight revenue was used to pay for damage caused in this way. If we consider the damage which may have been caused to the equipment at the same time, and also the fact that a large proportion of the damage to freight by rough handling could not be directly traced to that cause, the figure will be much larger. Is there no way in which it can be reduced? One railway officer who has given the subject much attention says emphatically that there is. He believes that a large part of this damage caused by the rough handling of cars is due to the fact that the tendency to economize in the number of switch engines has been carried to the extreme, thus causing the crews to work so fast that they cannot use proper precautions to protect the lading in the cars. In his opinion the addition of a comparatively small number of switch engines in yards or terminals where this is being done will greatly decrease the amount of the payments for damage to freight. It may be difficult to demonstrate this, but considering the rate at which such damage is increasing, would it not be worth the trial? Suppose that the cost of the additional service would only equal the reduction in damage to freight, or even be somewhat greater than it. Over and above this we would have the decreased cost of maintenance of equipment and the good will of the consignors and consignees who would not be disappointed and hampered by delay and damage to the shipments.

THE WABASH-PITTSBURG TERMINAL REORGANIZATION PLAN

THE story of the Wabash-Pittsburg Terminal bristles with superlatives. The building of the road into Pittsburgh, with the break between the Goulds and the Pennsylvania Railroad interests and the subsequent bankruptcy of the Terminal company, followed by the collapse of the great scheme for a transcontinental railroad under Gould control, was one of the most dramatic incidents in contemporary railroad history. The reorganization plan recently announced is one of the most drastic ever proposed for an American railroad. The possibilities held out at the time of the sale of the Wabash-Pittsburg Terminal Company's first mortgage bonds of that company's getting a share of the Pennsylvania Railroad's Pittsburgh traffic was one of the romances of American railroading and the failure is within these ends one of the most complete imaginable.

The Wabash-Pittsburg Terminal owns a single track road running from Pittsburgh Junction, in Ohio, where it connects with the Wheeling & Lake Erie, to the corner of Ferry street and Liberty avenue, within the city of Pittsburgh, a distance of 60 miles. On this 60 miles of road there are 77 bridges and 17 tunnels. The road was put in operation in July, 1904. The entrance into Pittsburgh was obtained by building a tunnel under the rock bound ridge on the west side of the Monongahela river and bridging that river with a bridge 1,504 ft. long and by using an old street railway franchise for the necessary permit to lay tracks to the Ferry street property which had previously been secretly acquired. The Pennsylvania Railroad considered this an invasion of its territory, and the feeling between the Goulds and that company was extremely bitter. It will be recalled that the Gould transcontinental system was to have consisted of the Western Pacific, running from San Francisco to Salt Lake City, Utah; the Denver & Rio Grande, running from Salt Lake City to Denver and Pueblo, Col.; the Missouri Pacific, running from Pueblo to St. Louis; the Wabash, running from St. Louis in Toledo; the Wheeling & Lake Erie, from Toledo to Pittsburgh Junction; the Wabash-Pittsburg Terminal, from Pittsburgh Junction to Pittsburgh, and the Western Maryland, running from a point in West Virginia, only about 40 miles from a branch of the Wheeling & Lake Erie, to Baltimore. The final completion of this system called for the building of the Wabash-Pittsburg Terminal and the 40-mile line to connect the Wheeling & Lake Erie with the Western Maryland. This latter link was never built.

In addition to the 60 miles of main line, the Terminal company owns a branch line 3½ miles long and owns a majority of the stock of the Wheeling & Lake Erie, all of the consolidated mortgage bonds and all of the stock of the Pittsburgh Terminal Railroad & Coal Company, the only other securities of the Coal company outstanding being $3,922,000 first mortgage 5 per cent bonds. All of the stocks and bonds mentioned above which the Terminal company owns had been pledged as security for loans. The Coal copany mentioned above owns at present about 12,880 acres of unmined coal estimated to contain from 90,000,000 to 100,000,000 tons of coal, and also owns the stock and bonds of the West Side Belt Railway, which has a single track railroad running from a point in the west end of Pittsburgh south paralleling the Monongahela river and some few miles to the west of it to Clairton, in Allegheny county, Pa., 21 miles.

Summed up, the Wabash-Pittsburg Terminal now owns about 63½ miles of single-track railroad and can obtain coal property having 100,000 tons of unmined coal on it and a 21-mile single-track railroad by paying $3,818,152. After this payment, of course, the coal property will still have a mortgage on it of $3,922,000. The total par value of securities and loans and other indebtedness, including receiver's certificates of the Terminal company, is now $91,260,345, and adding to this the $3,818,152 necessary to get out of pawn its title to the coal properties and the 21 miles of belt railroad, the gross capitalization is $95,078,497. The total interest charges would call for $2,783,252 yearly. The total amount which the properties, inciuding the Coal company, earned in 1914, a moderately prosperous year, available for interest charges was $513,172, and in the year ended June 30, 1915, a very unprosperous year, $95,156.

The public owns $30,236,000 first mortgage bonds of the Terminal company and $20,000,000 second mortgage bonds, and there is in default on these two issues of bonds $13,459,343 of back interest. The reorganization plan calls on the holders of the first mortgage bonds to give up their bonds and in addition to pay $300 in cash with each $1,000 bond given up and receive in exchange stock in the new company of par value of $300 preferred and $1,000 common. The second mortgage bondholders can only come into the reorganization plan if some of the first mortgage bondholders refuse to pay their $300 per bond and take their new securities.

If this plan works out successfully the first mortgage bondholders, or the first and second mortgage bondholders together, will put into the new company $9,070,800 cash. This cash will be used to pay the $2,395,880 Wabash-Pittsburg Terminal receiver's certificates and $714,286 West Side Belt Receiver's certificates and the $3,818,152 necessary to get the consolidated mortgage bonds and stock of the Coal company out of pawn and the remainder for paying certain judgments and forming working capital. Under this plan there will be but $5,100,868 bonds all told outstanding, of which $3,922,000 will be the first mortgage bonds of the Coal company which it was previously mentioned are held by the public; $383,000 first mortgage bonds of the West Side Belt which are held by the public, and $795,868 mortgages on real estate. The interest charges will therefore be cut from the $2,783,252, which they stood at before, and only a fractional part of which, of course, were ever earned before, to $261,103. It will be recalled that in 1914 the earnings applicable to interest charges amounted to $513,172.

If the present plan goes through the new company will issue $39,600,000 stock, of which a quarter will be preferred and three-quarters common. This will make a total capitalization, including the bonds mentioned above, of $44,700,868, as against a present capitalization of $91,260,345, plus the $3,818,152 required to get the Coal company stock and bonds.

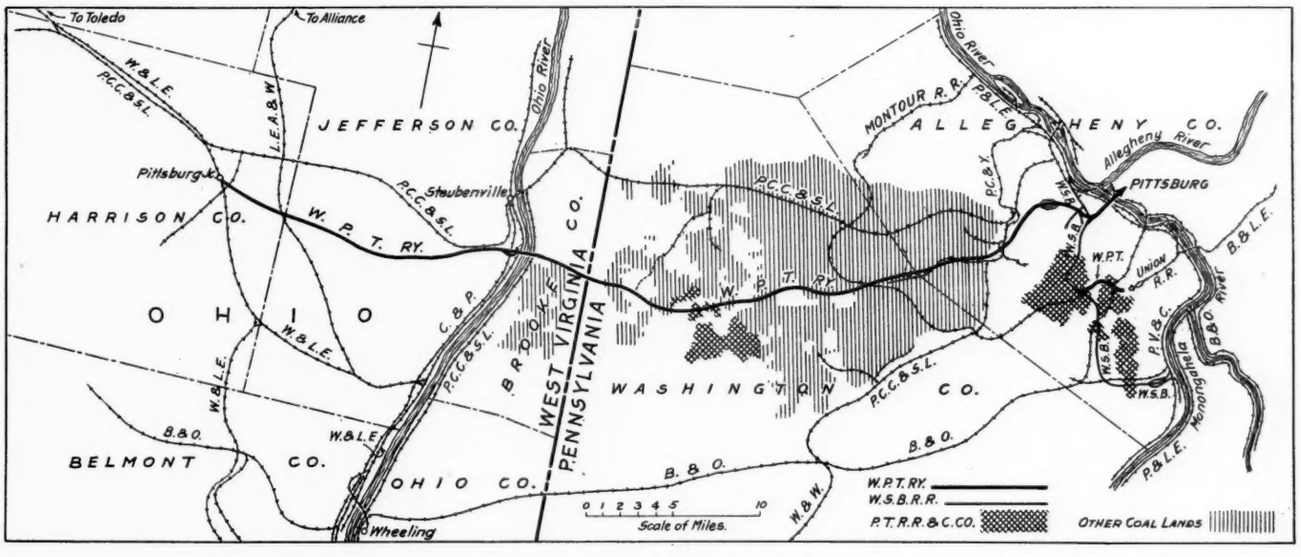
The Wabash-Pittsburg Terminal owns the majority stock of the Wheeling & Lake Erie, which is of doubtful value, however, The reorganization plan of the Wheeling & Lake Erie, which has been in the hands of receivers, calls for an assessment on this stock. The Terminal reorganization plan, therefore, quite properly provides that each of its own bondholders should receive his pro rata share of the Wheeling & Lake Erie stock, and thus be in a position to decide for himself whether he wants to pay the assessment or not.

It would simply be a retelling of a stale scandal to recount in detail the history of the Wabash-Pittsburg Terminal; but there are certain facts in this history which are brought out in so lurid a way that they may well form an object lesson to investors. In 1905 the Wabash-Pittsburg Terminal *first mortgage* 5 per cent bonds were selling at above 90. The purchaser of a $1,000 bond paid for it $900 or more. He received his interest only up to June 30, 1908. Since then he has received nothing, and under the reorganization plan he will have to put up $300 more in cash, give up his bond, and get for the total investment of $1,200 $300 preferred stock in a new company and $1,000 common stock, with no present prospect of any return on the common stock and no certainty of return on the $300 preferred stock. The lesson is obvious. The building of the Wabash-Pittsburg Terminal was a speculation pure and simple. Bonds issued at the rate of more than three-quarters of a million dollars a mile on a road whose earning power was a pure matter of guesswork should never have been offered to investors by any reputable banking house. No investor who made any investigation of the situation for himself should have ever bought these bonds, and the moral of that is that an investor should make some investigation for himself of the nature of the assets which are held out as security on which he is asked to loan money.

On the other hand, the present plan of reorganization appears to be a conscientious, thorough-going and common sense attempt to make the best of a very bad bargain. The new securities are speculative, of course. They are not proper investments for the conservative man or woman who is not already entangled in the Wabash-Pittsburg situation. On the other hand, to the holder of the old 5 per cent first mortgage bonds of the Terminal company they hold out the only opportunity to get back in the future something of the losses already sustained. If, as the reorganization committee appears to think, traffic can be developed, which development has never taken place so far, the road has good potential earning power. Whether or not a holder of these bonds should pay the assessment of $300 per bond would seem to depend entirely on whether his individual circumstances are such as to permit him to put the required amount of money in as a speculation with the hope and fair prospect of recouping himself for losses, or whether he is in a position where he cannot afford to risk any more money and therefore should take the losses which he has now sustained.

ST. LOUIS, "INADEQUATE TERMINAL FACILITIES"

THE people of St. Louis are in a position to realize the truth of the old saying, "Curses, like chickens, come home to roost." The Interstate Commerce Commission, in an opinion rendered last week in a case brought by the Business Men's League of that city, said that the "rail terminal facilities of St. Louis have not grown proportionately with the growth and trade of the community." The terminal facilities are afforded almost solely by the Terminal Railroad Association, which is owned by 15 of the trunk lines. Persons not familiar with the facts might naturally assume that the failure to develop them adequately was chargeable to the managements of the Terminal Railroad Association and of the companies which own it. This assumption would be incorrect. The managements of the Terminal Association and of the controlling railways have put forth great efforts adequately to develop its facilities. They have failed because for years they have been blocked by persons seeking to profit by bottling up the Terminal.



The Wabash-Pittsburgh Terminal and Pittsburgh Terminal Railroad and Coal Company's Coal Lands

The Terminal Railroad Association was organized originally to furnish to the St. Louis district a unified terminal system which could render the best service at the least cost. For about 14 years, or since 1901, almost every attempt which it has made to enlarge its accommodations has been opposed by shippers seeking thereby to obtain advantages in rates, by real estate men seeking thereby to gain by speculation in land, and by politicians seeking thereby to win public favor. Back in 1901, 1902 and 1903, just preceding the Louisiana Purchase Exposition, an ordinance was presented authorizing the construction of elevated tracks, connecting the Eads bridge with the elevated railroad on the river front. This would have enabled the passenger tracks using the bridge to be handled without passing through the tunnel operated in connection with the bridge. The ordinance was defeated. Subsequently, as an agency for solving the entire terminal problem, a Municipal Bridge and Terminal Commission, composed of public officials and prominent local business men, was created by the city council. After a series of conferences

with this commission, the officers of the railways agreed to absorb the terminal charges at St. Louis, except on traffic originating within 100 miles. This being satisfactory to the Bridge and Terminals Commission it recommended that the roads should now proceed to improve and enlarge their physical facilities. The Terminal Association, therefore, bought a large tract of land, known as the Rankin tract, and ordinances were introduced looking to the development of this property at an outlay of about $2 000,000.

The Terminal Association was now met with attacks of two kinds. It was denounced as a monopoly, and suit was brought in the federal court to dissolve it. The ordinances for the development of the Rankin tract were defeated in an effort to compel the railways to absorb the terminal charges on traffic originating within the 100-mile zone. The people of St. Louis repeatedly were warned that the main effects would be to prevent adequate development of their railway facilities. It was pointed out that it was to their interest that the question of the absorption of the "arbitrary" should be taken before the Interstate Commerce Commission, and that meantime the roads should be allowed to go ahead with their development plans. President McChesney of the Terminal Association gave figures showing that while the freight traffic of the city had more than doubled its terminal facilities had remained practically at a standstill, notwithstanding the efforts to enlarge them. These arguments were of no avail.

The proceeding for the dissolution of the Terminal Association finally went to the Supreme Court of the United States. It held that the Terminal was an illegal monopoly, but that it could bring itself within the law by admitting to its facilities at a reasonable compensation any line that wished to use them. This decision has as yet had no practical effect, for no railway has since applied for admission. The court also indicated that the question whether the railways should absorb all the terminal charges was one for the Interstate Commerce Commission. The matter was then taken before the commission, which held last February that the so-called "arbitrary" within the 100-mile zone was reasonable and legal. In other words, all the efforts to "hold up" the Terminal proved futile.

Since the decision of the commission approving the "arbitrary" the city, through its public service commission, has manifested a willingness to co-operate with the railways. It seems, therefore, to be only a matter of time until the conditions at St. Louis will be greatly improved. But it would have been better for St. Louis if it had heeded the dictates of reason and fairness, as expressed by its Municipal Bridge and Terminal Commission some eight years ago. And other communities can best avoid causing similar delay in the expansion of their railway facilities by pursuing a policy the opposite of that which St. Louis pursued for so long.

NEW BOOKS

Purchasing: Its Economic Aspects and Proper Methods. By H. B. Twyford. Size, 6 in. by 9 in.; 230 pages, 112 diagrams and forms. Bound in cloth. Published by D. Van Nostrand Company, New York. Price $3.

The author of this book speaks with the authority of experience gained in the purchasing departments of the Otis Elevator Company (with which company he is at present connected), J. G. White & Co., and the Underground Electric Railways of London. The book contains 15 chapters, these being arranged under the following heads: purchasing, the purchasing organization; the operation of the purchasing department, and purchasing as practised. The first section relates primarily to the importance of the purchasing function. The chapters in the second division consider the position of the purchasing agent and treat in brief of the work to be done by him and his assistants. This work is classified under the following heads: the obtaining and recording of information; the actual purchasing; the recording and checking of invoices; and in the case of the purchasing departments of some companies, there may also be included the functions of traffic, inspection, and the receiving and storage of materials. These elements and their sequence are shown also in graphic form. The third section, dealing with the operation of the purchasing department, enlarges upon this and treats in detail of the methods followed in the well organized purchasing department. The fourth division, which supplements it, relates, in particular, to the methods used in the purchasing departments of the Otis Elevator Company, J. G. White & Co., and the Underground Electric Railways, the chapters in both divisions being well illustrated with about 100 specimen requisition, order and other forms. The book apparently does not aim so much to train the purchasing agent as it does to show wherein the work of that officer can be simplified and applied in the most effective manner.

Railroad Accounting. By Wm. E. Hooper. D. Appleton & Co., New York and London. 641 pages. Price, $2.*

According to its title, this is a book which deals with nothing but railroad accounting; and railroad accounting in the United States at that. According to its form, it is little more than a reprint with running commentary of all the instructions issued by the Interstate Commerce Commission for the compilation of the statutory reports which they require from every railway company. For all that, it may be heartily commended not only to railway accountants but to every railwayman in this country who wants to master his own profession.

The author does not specify his own qualifications on the title-page, so it may be as well to say that he is an "associate editor" of the *Railway Age Gazette,* and that not much happens on American railways without being known in the office of that journal; and that—as he tells us in the preface—he has been helped by Mr. Cunningham, who has the unique position of being at once a professor and an active railwayman; by Mr. Mahl of the Southern Pacific, the *doyen* of all railway accountants; and by Mr. Trumbull, who has risen from being accountant of the Colorado & Southern, to being chairman of the board of two great railway companies. So we may be sure that the book is worth very serious attention. For Mr. Hooper and those who have helped him are all much more than accountants in the narrow sense. They are all men trained in the use of figures, who know that figures are indispensable for "disciplining the property." And they can be trusted to make figures their servants, and not their masters; to remember, according to the old phrase, that, though figures cannot lie, liars can figure; to assume, in Mr. Hooper's own excellent phrase, "an attitude of sceptical good fellowship with the figures that are used."

It is, of course, impossible within the limits of a review, to attempt detailed comment on a book of this kind. English railwaymen who criticized our new form of accounts on the ground that it was too voluminous, may perhaps be surprised to find that the corresponding American form consists of nearly 800 "primary accounts," and that the instructions drawn up by the Interstate Commerce Commission as to what items are to be included under each heading constitute in themselves a considerable volume. And in the near future the commission proposes to elaborate these accounts still further by including the costs of freight and passenger services respectively, figures which are already published by some railways and prepared by most for their own information. Mr. Hooper discusses at considerable length the question of how far cost accounting is carried and can be carried; and the extent to which such figures, if and when worked out, are useful to the manager and the public control authority respectively. And by the way it may be mentioned that he appreciates one point in which our English accounts are superior to the American, namely, that on certain large items of expense the wages costs and the material costs are entered separately.

One of the most interesting points in the book is the discussion of the eternal and insoluble question of the proper treatment of

*This review is reprinted from The Railway Gazette of London.

additions, betterments, obsolescence, and the "costs of progress." In this country till very recently all additions and betterments were, speaking broadly, charged to capital. In America, however far the practice on poorer or less honestly managed railroads may have fallen short of the theory, the ideal was that net revenue should yield a dollar for dividend and a dollar for betterments; and the betterments dollar was ploughed into the road through the maintenance accounts, and no trace of its presence appeared in the balance sheet. Nowadays the practice is very different. The Interstate Commerce Commission requires—and, through its right of inspecting the accounts, can enforce its requirements—that nothing shall be charged to maintenance beyond actual replacement. If an engine costing $10,000 is scrapped, and a new engine costing $18,000 is substituted for it, only $10,000 must be debited against operating expenses. And so, if a bridge of steel or stone replaces a wooden trestle, the cost of a new trestle alone is a working expense. The additional cost must be shown as "additional investment." Whether the company issues new capital to pay for it, or charges it against income, is still left to the directors to decide; but the main point on which the commission insists is that the accounts shall show clearly what the net revenue of the company is after charging against current income everything that can be included as maintenance proper, but nothing more.

It is evident that the whole of the net revenue so obtained is available for dividend if the company thinks fit so to apply it. Such application is no doubt unwise. No company can devote its revenue wholly to dividend without having cause to regret its action sooner or later. But here in England no one has yet doubted that undivided profits put back into the business belong to the shareholders just as much as the property purchased with the capital originally subscribed. In America, on the other hand, this position is very seriously challenged. The attitude of the public authority is this: railway companies are an agency of the nation; they are employed by the nation to execute a public function on condition that they may charge reasonable rates and earn, if at these rates they can do so, a reasonable return on their money. If they earn, say, 7 per cent dividend, that is reasonable. But if they earn 14 per cent and can afford, after taking 7 per cent for themselves, to pay another 7 per cent into betterments, that implies an unreasonable return obtained by charging unreasonably high rates. The extra 7 per cent, therefore, cannot in equity belong to the shareholders. They might later on issue capital against it, and pay 7 per cent dividends on this new capital also. To all time it must, however, belong to the public, who are entitled to claim that the railroad company should hold it in trust for them as a fund out of which the railroad can be improved for the public benefit without further cost to the public in the shape of dividends on new capital. The position is curious. *Prima facie* the contention of the public authorities seems not without force. On the other hand, there is nothing either in law or in equity to prevent the company dividing the full 14 per cent. It is clearly more in the public interest that they should divide only 7 per cent. And the claim of the public authority seems in effect to amount to penalizing the railway company for acting in the public interest.

The latter part of the book gives a very full account of the auditing and accounting organization of the American railways, the details of which will naturally appeal to specialists. But scattered all through the chapters are to be found many shrewd remarks showing what may be done by treating figures with "sceptical good fellowship." On the whole it is quite safe to say that no railwayman, whatever be his department, can fail to find this book interesting, or fail to profit by reading it. Scientific scepticism is an admirable attitude of mind, and we all need to be shaken up and made to think what is behind and what has gone to the compilation of the summary figures which we are apt to take for granted as simple and positive facts.

W. M. ACWORTH.

Letters to the Editor

SAFETY FIRST SUGGESTIONS

NEW YORK.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

As railroad inspectors are primarily employed to insure safety, would it not be well to designate them as Safety Inspectors; for example: Car Safety Inspector, instead of simply Car Inspector; Track Safety Inspector, in place of Track Walker; Signal Safety Inspector, instead of Signal Inspector? I would also suggest furnishing these inspectors with badges or shields with their respective titles inscribed on them. It is believed that by following a plan of this kind, whereby inspectors would be placed in a special "Safety" class, it would not only have a good moral effect on the individual inspectors but on the other employees with whom they came in daily contact. As car inspectors mingle with the traveling public at terminals, it is also believed that the "Safety" badge would attract attention and tend to insure confidence in the management of the road. Quite often inspectors are called before public investigation committees, etc., and if it were brought out that they were safety inspectors, employed solely for the purpose of safety, it might have some weight in favor of the railroad company.

O. R.

RAILROAD MORTGAGES

NEW YORK.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

In regard to an article in your issue of June 8, 1915, headed "A Recent Development in Railroad Finance," by George A. Clark, I take the liberty of differing with Mr. Clark, as to the statement he makes in the table headed "Comparison of salient provisions in latest type of railroad 'blanket mortgage' bonds."

Opposite the title "Authorized Issue" under the N. Y. C. & H. R., C. M. & St. P., and N. P., he uses this language: "Limited to three times outstanding capital stock." I think that if he will refer to the mortgages of the New York Central & Hudson River and the Northern Pacific, he will find that the language contained in those mortgages is not the language he has used. The mortgage of the Chicago, Milwaukee & St. Paul, in conjunction with the supplemental mortgage, also does not contain the limitation named. The New York Central & Hudson River mortgage, under article 1, has the following language:

> The authorized issue of bonds under this indenture is limited so that the amount thereof at any one time outstanding, together with all outstanding prior debts of the railroad company, after deducting therefrom the amount of all bonds reserved under the provisions of this indenture to retire prior debts at or before maturity, shall never exceed three times the outstanding capital stock of the railroad company.

As I interpret that language, under certain circumstances, the limit could be three times the outstanding capital stock, but under other circumstances it could not equal three times the outstanding capital stock, for if the prior debts to be added are greater than the prior debts reserved for under the mortgage, then the authorized issue under that language would be less than three times the capital stock, and I think that the language used in the other mortgages is of a similar nature.

The language used in these mortgages cited was evidently intended to comply with the savings bank law of New York, and if the law is examined, it will be found that the language used is practically the same as that used in the law. The savings bank act does not say that the authorized issue is limited to three times the outstanding capital stock, but states that

> The mortgage shall not authorize a total issue of bonds which together with all outstanding prior debts of said company, after deducting therefrom the bonds reserved under the provisions of the mortgage to retire prior debts at maturity, shall exceed three times the outstanding capital stock of said company.

KENNETH G. WHITE,
White & Kemble.

Training of Young Men With Reference to Promotion*

A Powerful Directive Influence in Selecting, in Training, and in Promoting Men Is Absolutely Necessary

By George M. Basford
Chief Engineer Railroad Department, J. T. Ryerson & Son, New York.

A railroad president recently made this observation and asked this question: "What troubles me most is the question of promotion of men to subordinate executive positions. I don't know who should be promoted and my department heads don't have proper confidence in their own recommendations. Can you suggest a way to promote men intelligently?"

American railroad officials have attained their positions either because of or in spite of the conditions under which they came to the front. These paragraphs are based upon the opinion that they have come to the front in spite of unfavorable conditions. They are also based upon the belief that railroad problems of the immediate future will create demands for ability beyond the possibility of present methods to supply. They are further based upon the conviction that the selection, training and promotion of their personnel is the problem of supreme importance before railroads today. The object of your speaker is to reveal this problem and show how it may be solved by inspired leaders of a railroad organization.

The time-honored method of waiting for executive force and leadership to reveal itself in the ranks has produced magnificent men, but this method will not meet the great need now coming upon us. It is inadequate. It will result in a famine of leadership. It belongs to the past days of relatively small things. You must make men. You can not afford to wait for them to make themselves.

On the other hand, the plan adopted by some railroads a generation ago and now coming to new life—that of training young men, usually college men—announcing that they are being trained for official positions—is unquestionably wrong in principle and is doomed to failure. With some notable exceptions, it has failed generally, and for a very definite reason it is sure to continue to fail. West Point and Annapolis plans are ideal for the army and navy, because enlistments in the rank and file are for limited periods and the majority of recruits leave the service in early manhood. It is, therefore, necessary to train many young men specifically as officers of the army and navy. Success of railroads, however, largely depends upon the permanent enlistment of its rank and file. This changes the entire problem. It is from the ranks of enlisted men in railroad service that most of you have come. It is from the same source that nearly all of the great railroad leaders of the time have come. It is from the rank and file that the very greatest leaders of the world have come. Railroads will fly in the face of history of achievement if they forget this fact. It is safe to predict that the same source will supply the even greater leaders that the future will require. When you announce that young college men are being trained for official positions, you slam the gates to advancement in the face of the man in the ranks. This plan has brought exactly this result on one of our great railroads. It is not fair to the college men. It is not fair to the rank and file.

Great works require great leaders. Great leaders require perfection of training in the ranks. Perfection of training in the ranks in turn produces and develops great leaders. Therefore, it appears that the men in high authority today will leave the legacy of greatest value to the future if they properly attend to the training of the recruits coming into the ranks.

For success, all large business organizations must depend upon ability, fitness, training and loyalty of men in the ranks and of subordinate executive officials. Because its organization is scattered over thousands of miles, this is particularly true of a big railroad. Picture your own position as a railroad officer if you could depend upon the individual shopman, trackman, yardman, brakeman, conductor, fireman, engineer, despatcher, agent or clerk to do the right thing at the right time and intelligently to devote the hours of his day to that part of your problem for which he is responsible! You would have time to think and time to plan. Your mind would be free for the larger tasks and larger opportunities before you. Your desk would not be piled high with the useless official literature of today, the burden of which is, "Please explain." Today we are looking for the genius and are overlooking the production of good workmen. We are depending upon officers. We need to depend upon men. Trained, properly educated and encouraged workmen will provide good officers later.

Whereas greatest care, deliberation, study, specification, test or guarantee are applied in the purchase of property, rails, equipment, machinery or material and the highest officials interest themselves in the purchase, the prevailing custom is to leave selection of new employees to mere chance. It may happen that the future chairman of the board will in his first entrance into the service be hired by a clerk, or that one capable of development to such an office may be rejected by a clerk. High-priced officials buy your locomotives and your rails. Who buys your men of the future?

Solution of this problem begins with the selection of men in the ranks. Systematic methods of selecting human material for the organization are imperative. The boys in offices, in shops, and all along the road should be most carefully and intelligently selected. Some one well qualified must be given this responsibility. Then these recruits must be tried out, and those "making good" must be trained. This word "trained" represents a new meaning as applied in this connection. It means thorough education of hand and brain and conscience. Selection is important in all organizations, regardless of size. The larger the organization, however, the more important is the matter of training. Training through apprenticeship is imperative. It may not safely be deferred. You will not be able to hold your own in railroad progress without it. For example, how will you keep up with requirements in locomotive-boiler construction and maintenance without apprentices in your boiler shops? You need workmen who are better informed than the foremen used to be. This is true of many trades and many positions in railroad service.

It is believed to be perfectly practicable to provide thorough training for boys and young men in every department of the railroad. Each should be trained and encouraged to develop and advance as far as he can go. For shop recruits the way is clear, through apprenticeship and apprentice schools. This has already been worked out on several railroads. The Santa Fe today has 877 shop apprentices in nine separate trades at forty-one shops. They are under instruction by shop instructors, through whom they are learning their trades. In company schools in working hours these boys receive mental training and development in lines corresponding with their work. The school instructors are company employees who have developed an educational plan so satisfactory as to merit the attention of the professional educators of highest standing. The shop and school instructors are selected and trained most carefully. They are expected to, and they do, exert a powerful moral in-

*An address recently made before a meeting of the Burlington Association of Operating Officers.

fluence over the boys. After eight years of continual growth, the Santa Fe will this year graduate 175 of these boys into the ranks of competent, educated workmen, and this is only a beginning. Ask yourselves whether or not your official load would be lightened if you had 175 trade trained and educated workmen launched into your organization each year. In eight years the road referred to has graduated 651 of these competent reliable young men. Seventy-one per cent of these youths are now in the service. If only half of these remain in the service a promising start has been made.

With a suitable plan of promotion a large proportion will remain in service, and that curse of railroads—the floater—will be displaced by the steady, reliable workman you all want. At a shop on another road where apprenticeship has been established eight years, and where 1,500 men are employed, but 57 men of mechanical trades have left the service in a year.

Because the boys are supervised and trained in groups, training in mechanical trades is relatively easy, but boys in every department may be trained if an officer high in authority issues the order that every one on the road must see to it that the employee immediately below him in rank is trained and prepared for promotion. This applies to offices, stations, yards, and everywhere else. All employees will some day be told that they must not expect promotion until they have properly trained and educated their own successors. You will all agree with this, but are you doing it? Every shop and large office building will some day have its school and every road will some day provide educational schemes for outlying points by correspondence. Every road will also some day provide an officer whose duty is to scour the cities and the rural districts along the line for boys of the right sort.

Clerks are a neglected crowd of competent and incompetent men—usually in blind-alley jobs with no training and no outlook. You can not afford to have any blind alleys on a railroad. Many of these clerks would make good station men if they had a friend and a chance, just as many good shop boys would make excellent firemen and roundhouse men. Don't forget that many of the best high officials of our railroads have been clerks. They did not rise because they were clerks, but in spite of that fact. The development of this idea has no limit, but two factors are absolutely necessary to successful accomplishment. One of these is an adequate, complete and systematic scheme of promotion. The other is an inspired officer, very close to the president of the road, as organizer and administrator of the training and promotion of men. Let us speak of this officer first.

There can be no better foundation for an organization than the principle that the ranks, if carefully recruited, will necessarily contain the men of the future. The men are there. We must turn on the light in order to find them. The men of the future must be discovered and promoted. Because of the size of a railroad organization it is necessary to provide easy and automatic methods of discovering ability. It is desirable that promotion should be proposed by co-operative action by subordinate officials and controlled by a very high official whose authority is complete in this case. Suppose the president of a railroad could find a man qualified for the duty of directing the training and promotion of men. The difficulty in finding such a man emphasize the importance of the duty. This man should be given a dignified, powerful position, with such a title as "assistant to the president." He should be responsible for methods of recruiting, methods and means of training men, and for a scheme whereby he will personally know that every promotion is based upon merit, with favoritism and politics banned. He should be responsible for and personally approve every promotion in the entire organization. To do this with intelligence, periodical individual surveys of the organizaton should be made, say, every six months. This was done with success by L. G. Parish for his department when superintendent of motive power, and the scheme is adaptable to all departments with practically no limits.

The cards used by Mr. Parish have been mentioned and described publicly before and are worthy of your earnest attention. This is the personal record card and these are the definitions of terms accompanying it:

NAME..... AGE.....

EMPLOYED AT.....

AS ....

	Very Good	Good	Medium	Poor
EDUCATION				
SPECIAL KNOWLEDGE				
EXPERIENCE				
HONESTY				
MORALITY				
TEMPERANCE				
TACT				
RESOURCE				
RELIANCE				
FORESIGHT				
APPEARANCE				
MEMORY				
ENERGY				
INITIATIVE				
PERSISTENCE				
ASSERTIVENESS				
DISCIPLINE				
PROMPTNESS				
ACCURACY				
SYSTEM				
ORGANIZATION				
EXECUTIVE ABILITY				

SIGNATURE..... .....

DATE.....

DEFINITIONS

EDUCATION: Mental and moral training.
SPECIAL KNOWLEDGE:
EXPERIENCE: Knowledge acquired by actual trial and observation.
HONESTY: Upright disposition or conduct.
MORALITY: Accord with the rules of right conduct.
TEMPERANCE: Moderation.
TACT: Ability to do or say what is best for the intended effect.
RESOURCE: Good at devising expedients.
RELIANCE: Sure dependence.
FORESIGHT: The act or power of foreseeing.
APPEARANCE: Outward look or aspect.
MEMORY. Mental hold on the past
ENERGY: Active, Effective.
INITIATIVE: The ability or disposition to take the lead.
PERSISTENCE: Steady or firm adherence to, or continuance in, a state, course of action, or pursuit that has been entered upon.
ASSERTIVENESS: Affirming confidently; positive.
DISCIPLINE: To teach rules and practice and accustom to order and subordination.
PROMPTNESS: Quickness of decision or action.
ACCURACY: Correctness.
SYSTEM: Regular method or order.
ORGANIZATION: A systematized and regulated whole.
EXECUTIVE ABILITY: Ability to carry into effect in a practical manner.

Mr. Parish issued exactly enough of these cards for all employees in the department except laborers. These were filled out by foremen, for the men under them; by general foremen, for the foremen; by master mechanics, for general foremen; by roundhouse foremen, for their men; by road foremen of engines, for firemen; by chief clerks, for clerks, and by every under official for those immediately reporting to him. This extended all along the line up to his own position. He personally kept the cards and compared the reports from time to time. No official was allowed to keep records of his opinions of his subordinates, and it was soon clear that the officials were undergoing a course of training in observation of their men. The manner of making out the cards reveals the difficulty in getting people carefully and systematically to estimate the value of the

work of their subordinates. Some time is required to train officers properly to make out these cards. This fact emphasizes the value of the cards.

It is hard to tell about a man whom you do not really know. For example, when one of these cards is filled out by a foreman, suffering on that particular day with rheumatism, everything takes on a somber hue and under such conditions the foreman's opinion of a subordinate is not normal and not fair. In other words, the estimate of the good and poor qualities of the subordinate is likely to be colored by the condition of mind of the one who makes the estimate, at the time he makes it. An officer, until he has made a very careful study of a subordinate, is quite likely to mark up some of these personal characteristics differently at different times, according to his own moods. When these cards are examined and compared with those previously issued for the same individual, it may be found that the officer has recorded on one card that the subordinate is "very good" as to tact. On the next card six months later he may mark the same individual "poor" as to tact. This means that the officers making the records need training in studying their own men. Let me suggest that you fill out these cards for your own first assistant. Lay the cards aside and repeat the operation three months later. One of the best results to be obtained by the cards is to compel, and check up, this intimate study of individuals. It is perfectly clear that today promotions are made without any such study. The difficulty indicates the great importance of improvement of methods of promotion.

A part of the scheme was the general announcement that the standing of an officer was affected by the records of his men, by the improvement of those records, and by the number of men under him that were promising for promotion. All promotions were made from these records which in a large measure revealed the capacity of men for the particular promotion recommended. This scheme was carried out for a length of time sufficient to prove its value before Mr. Parish left the service. It is unnecessary to elaborate the method of application of this principle to other departments. It is sufficient to state that upon one occasion this scheme prevented the promotion of a worthless youth simply upon the ground that the official recommending the promotion wished to marry the lad's mother.

Do not misunderstand this card. It is not a blacklist of any kind, but a record of virtues with intent to use them for promotion. It will reveal weakness, but with intent to overcome it. A very broad man must dictate the policy of handling the cards. He must not be one to look for trouble, but to look for light. Then the cards must be kept as if sacred by the heads of departments. Note that this plan requires no bureau, not even an additional clerk, and no red tape. In the form shown it is not final, but may be varied to suit any conditions of employment.

Our assistant to the president need not personally watch all these cards. He should, however, by frequent checks know positively that every department head is watching them, and he should personally keep the records of all important officials. He should also require record cards for a long period to accompany a recommendation for promotion. For example, a vacancy as assistant superintendent is to be filled. The assistant to the president would call on all interested departments for recommendations and the office would be filled after an intelligent and complete investigation of all eligible men, including the mechanical and track as well as the operating department. The plan should cover every department. If you are to have the mechanical officials you need for future problems you must consider them for promotion into operating positions. Railroads are already paying dearly for neglect of their mechanical men. Of course, the jobs to which promotion is to be made should also be analyzed as well as the men who are to be promoted and misfits thereby may be avoided.

How about the college man in railroad service? College men are needed on railroads, but they will be most valuable if they come from the ranks or through the ranks. If you establish trade apprenticeship wherever your boys may be grouped, as in the shops, and other methods of training boys who can not be grouped; if you require these boys to attend schools, either day schools on company premises and on company time or night schools directed or controlled by you, you will soon have a lot of earnest youths honestly endeavoring to improve themselves. If you select the best of these as candidates for courses in colleges or technical schools, you will certainly have at hand the best possible raw material from which to make college men. Moreover, they will be of and from your organization. You will know them and they will have already established themselves as a part of your organization. Send a few such youths to college and they will return splendidly equipped for your service.

Your speaker believes that railroads should offer scholarships in technical schools as rewards to youths in the service. It would cost $1,200 per year for a scholarship each year as a reward for the best personal record among the apprentice or other boys on your road. Three hundred dollars a year, with a little money earned during vacation, will see a boy through college. Send one of your own boys each year, require him to work for the railroad during vacations and require him to return to the service for two years after graduation. You will have four boys at college all the time and one graduate each year. These graduates will be college men of great value to you. You may not retain all of them in service, but this plan will enable you to offer college courses as a stimulant for ambition to the recruits in your service. This may be worked out in the form of prizes for young men in all departments of the service. As an investment, it would pay to send several boys each year.

For twelve years Joseph T. Ryerson & Son scholarships have been available for boys from the ranks in railroad service. Three fine young men have enjoyed the advantages of a four-year course in mechanical engineering. The more young men of this sort you have in your service, the better for you. The American Railway Master Mechanics' Association provides several scholarships. Why don't you send boys from your ranks to college?

Training of men will cost something. It has, however, been demonstrated beyond question that it pays from the very start. It will pay in every department. The instructor in shop trades pays for himself from the very first day in the damage saved in machines and materials. At the Montreal works of the American Locomotive Company apprentice boys became efficient as workmen at the end of the first year. Wherever apprenticeship with real training and apprentice schools have been accorded a fair trial, the results have fulfilled most sanguine expectations as definite examples would prove if time permitted of their presentation.

These words, from a report of a Massachusetts commission on industrial training, represent the need in all departments of a railroad as well as they apply to the manufacturers of this country.

"In many industries the processes of manufacture and construction are made more difficult and more expensive by a lack of skilled workmen. This lack is not chiefly a want of manual dexterity, though such a want is common, but a want of what may be called industrial intelligence. By this is meant mental power to see beyond the task which occupies the hands for the moment, to the operations which have preceded and to those which follow it—power to take in the whole process, knowledge of materials, ideas of cost, ideas of organization, business sense, and a conscience which recognizes obligations."

Train your men in every department. This can not be made too emphatic. You will fail in your mission in life if you don't. You will leave a priceless legacy in the form of an organization replete with human efficiency and, therefore, human happiness, if you do. Train your rank and file and this great railroad organization will be a pyramid resting upon its base. A pyramid is typical of the structure of an ideal organization built to endure. It has a broad, firm base as a foundation. In the human

organization this foundation is the men in the ranks. If the men in the ranks are what they ought to be, the top will take care of itself. If only the top is right, the structure is unsafe. When you raise the rank and file you lift yourself also. You can't be a master of efficiency unless the men you trust to carry out your orders are efficient. The organization is strong as the ranks are strong in the old-fashioned virtues—skill, industry, economy and integrity.

To the man in the ranks the future looks hopeless with increasing intensity as organizations grow larger. Do something for him. Recognize the individual whom you as officers seldom or never see. Save the souls of men of the kind the world needs by simple encouragement, by recognition of merit, by looking for it, by recording it, and by rewarding it. Employers are responsible for many lost souls and ruined lives just because of neglect of the subject of this talk.

The path has already been blazed. The pioneer work has already been done, but thus far the complete plan here suggested has never been carried out. Remember that while this plan is really simple in principle, its inauguration and operation can be intrusted only to an inspired and powerful official, and one capable of handling it is not easily found. This fact indicates the tremendous importance of the question of training and promotion. It is a great undertaking as measured by the certain results, but the plan itself is simple and the expense is negligible.

There is no greater work in the world than to help those who desire to help themselves. There is no nobler task than the training of young minds. But experience has shown that training alone is not sufficient. A powerful directive influence in selecting, in training and in providing the organization for men who are trained is absolutely necessary. To show the necessity for and the possibility of providing this influence is my object.

HEARING ON ADVANCES IN WESTERN PASSENGER FARES

The hearing at Chicago before Examiner Thurtell of the Interstate Commerce Commission on proposed advances in western passenger fares which was begun on July 6, was concluded on Saturday, July 17. Reports of the testimony presented during the first week of the hearing were published in the last two issues of the *Railway Age Gazette*. The second week of the hearing was mainly devoted to the introduction of exhibits by representatives of the protesting state railway commissions and cross-examination by the attorneys for the roads.

C. W. Hillman, president of the Mutual Audit Company, who, as reported in last week's issue, testified on behalf of the protesting state railway commissions, making a separation of the freight and passenger expenses of seven of the roads in the case, was subjected to a vigorous cross-examination by Charles Donnelly, assistant general counsel of the Northern Pacific. Mr. Hillman's figures had shown the operating ratio in the passenger service of these roads as only 68. He said he had been surprised himself to find that the ratio of expenses to revenues in the passenger service was less than in the freight service. Mr. Donnelly brought out the fact that although he had made a separation of expenses between various classes of service in several other cases against railroads he had used different formulas in almost every case. While he had used six different bases of separation between freight and passenger expenses in his exhibits, he said that he had a strong personal preference for the gross weight basis, which he had used for the separation of most of the accounts.

"Upon your gross weight basis of dividing freight and passenger expenses," said Mr. Donnelly, "if we had a 3,000-ton freight train moving at 15 miles per hour and a 500-ton passenger train moving at 40 miles per hour, you would charge the passenger train with only one-sixth as much expense as you would the freight train." Mr. Hillman replied in the affirmative, saying he had made no allowance for the element of speed, because there were some compensating factors on the other side and he had made no investigation as to the effect of speed.

Mr. Hillman had divided all of the maintenance of way and structures expenses between wear and weather, attributing 17½ per cent of the expense of renewing ties, 10 per cent of the rail expenses, 15 per cent of bridge expense, and 25 per cent of the account for cattle guards, fences and signs, to wear. He said that portion of the expense attributable to wear should be divided between freight and passenger on the basis of the use, but that the portion attributable to the weather could not be divided on the basis of any operating factor. He preferred the revenue basis, but said that that had been largely discredited. Therefore, he had used the net ton mile basis for dividing the expenses due to weather. He had attributed 52 per cent of the total maintenance expenses to weather, and this method resulted in assigning to the passenger service only 2 per cent of the cost due to weather and to the freight service 98 per cent. He said he had taken his percentages for wear and weather from figures used by the Wisconsin Railroad Commission, with some modifications of his own. Mr. Hillman said that the railroads had used antiquated methods in dividing their freight and passenger expenses, whereas he had endeavored to keep up with the latest developments on the subject. Mr. Donnelly asked if any railroad man had ever used a method more crude than that of assigning a fixed percentage of the ballast, or tie, or bridge expense to weather, regardless of different conditions on different railroads. Mr. Hillman said that the basis was not absolutely dependable, but that he had taken it as an average. Mr. Donnelly brought out the fact that the figures presented by the railroads in the passenger case as to the comparative cost of passenger service are the same as were presented in the freight case. Therefore, if they redound to the benefit of the roads in this case, showing passenger costs too high, then they would have been to the disadvantage of the roads in the freight case. He also contended that the witness had reversed methods he had used in the recent western freight rate case, and had made numerous deviations in his oral testimony describing his methods from those outlined in his written statement of his methods and percentages. "In the freight case," said Mr. Donnelly, "you found the passenger expenses 31.02 per cent of the total for November, 1914, for the Chicago & North Western. If you had used the same basis in this case the passenger expense for the North Western would be $1,058,647 higher than you showed in the passenger case exhibit. If you had used the same basis in this case as in the freight case the North Western ratio of passenger expense to revenue would be 77 per cent, instead of 72 per cent." Mr. Hillman admitted that the difference in his methods would make a difference of about 5 per cent. Mr. Donnelly also showed that the witness had charged freight with all non-revenue freight, but charged passenger with no non-revenue passenger business, thus reducing its cost. He had also used a different basis for dividing the maintenance of way expenses than he had used for dividing the maintenance of equipment expenses, with the result that in each instance less was charged to the passenger service. It was also shown that the witness had charged all special train miles to freight and all officers' cars to freight, showing none of their expense in the cost of operating passenger service.

U. G. Powell, rate expert and accountant for the Nebraska Railroad Commission, presented an elaborate exhibit to show the comparative cost of operation of through and local trains, but his figures were limited to the direct train costs, in which he included only fuel and wages of train crews. His figures showed that it cost more to handle local passengers than through passengers, but he contended that this was offset by the more expensive character of equipment in the through traffic. His figures were based on an analysis of the accounts of the Chicago & North Western for 14 days, and of the Chicago, Rock Island & Pacific for seven days in 1915, and showed that for the two roads combined the average train cost per passenger mile was 5.9 mills for local trains and 4.83 mills for through trains. For the North Western the combined cost of through and local trains was 4.97 mills and for the Rock Island 5.4 mills. For the Rock Island the average cost of through passengers per mile was 5.33

mills, and for local passengers 5.69 mills. These figures excluded suburban passengers and passengers in mixed trains.

W. E. Reed, attorney general of Nebraska, asked the witness his opinion as to whether the railways are earning a fair return on their property. "In my opinion," replied Mr. Powell, "the roads are making a fair return on the value of all their property which represents a sacrifice on the part of the investor, but if the courts finally hold that they are entitled to a return on all of their property, regardless of the source, I would have to change my opinion." This remark caused a commotion among the representatives of the states. Mr. Reed said he thought the witness misunderstood his question. Mr. Powell said he would limit his statement to the six roads of which he had made a study, including the Missouri, Kansas & Texas; Chicago, Milwaukee & St. Paul; Chicago & North Western; Chicago, Burlington & Quincy; the Atchison, Topeka & Santa Fe, and Chicago, Rock Island & Pacific. Mr. Thorne then fired a volley of questions at him in an effort to impeach his qualifications to speak at all on the question of return on value, while representatives of other states interrupted with additional questions. "Is this cross-examination or impeachment of your witness?" asked Attorney H. A. Scandrett of the Union Pacific.

Mr. Powell said, that in his opinion the higher cost of hauling passengers a short distance did not justify a different fare on that short haul business, but that a road should be considered as a whole. Mr. Scandrett brought out that his exhibit showed that on passenger traffic for hauls of less than 50 miles the cost was very much higher than for the longer hauls. His question as to whether this justified a higher charge on the short hauls aroused a protest by representatives of the state commissions, but after a ruling by the examiner Mr. Powell stated that there should be no difference, at least until the courts are commissioned to determine the exact difference in cost. Mr. Scandrett also contended that the wage and fuel items included by Mr. Powell in his direct train costs amounted to only about one-fourth of the total expenses.

The next witness was W. M. Sangster, an accountant for the Arizona Corporation Commission, who presented a number of statistical exhibits for 21 western roads for the period 1904-1914. On cross-examination it was found that his figures showed in almost every case a reduction in the number of passengers per mile of line, in passenger revenue per mile of road and in revenue per train mile, although there was a total increase of passenger miles. S. T. Bledsoe, assistant general solicitor of the Atchison, Topeka & Santa Fe, brought out the fact that the exhibit showed that the number of passengers per mile of road on the Santa Fe in 1911, was 143,000, and in 1914 only 137,000. The passenger service train revenue per mile of road was $3,796, in 1911, but only $3,671 in 1914. The passenger service train revenue per train mile was $1.54 in 1911 and $1.46 in 1914. Mr. Sangster contended that this condition was explained in part by operating conditions. For example, he said, the Santa Fe had constructed a large mileage of line, especially for the freight service, on which few passengers were carried, and that, therefore, the passenger figures per mile of road would be correspondingly reduced. Mr. Sangster also filed an exhibit to show alleged discriminations in the fares to Arizona points.

Other witnesses for the state commissions were M. A. Chambers, an accountant for the Kansas Public Utilities Commission, who presented a number of statistical exhibits to show the amount of improvements charged to operating expenses, and Wayne Ellis, an accountant for the Iowa commission, who presented figures showing what the returns of the railroads would have been if their capitalization had been one-third stock and two-thirds bonds, based on valuations made by D. F. Jurgenson, engineer for the Minnesota Railroad Commission.

Clifford Thorne requested that a large number of the exhibits on behalf of the protestants in the western freight advance case be included as a part of the record in this case, and he made a long statement explaining the bearing of each exhibit on this case, based on his theory that the railroads have decreased their net operating income in recent years by including in operating expenses a large amount of additions and betterments, and by increasing the rate of renewals, etc., thus raising the standard of the property, and endeavoring to show that the railroads were earning as high a net return as other lines of business.

Mr. Thorne also demanded that the railroad men who had compiled the replies to the commission's list of 18 interrogatories be produced as witnesses for cross-examination. This request was denied by the examiner.

The testimony on behalf of the state railway commissions was completed on Saturday morning, after which E. K. Clink, chairman of the committee representing the International Federation of Commercial Travelers, filed a long statement with the commission, entering a protest against the proposed advances as "unnecessary, inconsistent, arbitrary and an imposition on the traveling public, and a particular hardship on the commercial travelers." The statement was said to be on behalf of a membership of 400,000 commercial travelers, and figures were presented to show that 500,000 commercial travelers, making an average of 50 miles a day for 10 months of the year, would spend in railroad fares an average of $15,000,000 a month, or $150,000,000 a year. The statement also declared that 75 per cent of the commercial travelers are on a commission basis and pay their own expenses.

The railroads then put on the stand a number of witnesses in rebuttal. The first rebuttal witness was T. A. Hamilton, supervisor of efficiency of the St. Louis & San Francisco, who criticized the gross ton mile basis of division between freight and passenger expenses used by Mr. Hillman, explaining the engine ton-mile basis used by the railroads, and also the equivalent ton-mile basis recommended by the committee on Economics of Railway Location of the American Railway Engineering Association in a bulletin issued in 1913. These bases, he said, take into consideration the speed of a train, and also the fact that from one-half to three-quarters of the damage to the track is done by the locomotive. He ridiculed Mr. Hillman's division of the expenses between wear and weather, saying that the best engineer ever born, entirely familiar with the conditions on his own railroad, could not apply the same figures to another railroad with any degree of accuracy. He said that the Supreme Court had held that expenses must be divided according to the use, and that the use is measured by weight, distance and speed, which are taken into consideration in the formulas used by the railroads. Mr. Hillman had not taken the effect of speed into consideration in any of his formulas. Mr. Hamilton said that on the engine ton-mile basis, after the principle is once accepted no figures need be estimated, but absolute records can be used. "We do not have to assume as Mr. Hillman did," he said, "an arbitrary average weight of carload or locomotive and then apply a theoretical division to this and get a result carried out to seeming refinement by the use of a large number of decimal places which look like a punctuated box car number." Mr. Hamilton said that the engine mile basis is defective because it makes no allowance for the different types of engines; the train mile basis does not allow for the fact that the engine does the most damage to the track, and that expenses cannot be divided on the revenue basis unless the rates are based on cost.

Frank Nay, controller of the Chicago, Rock Island & Pacific, testified that he checked over Mr. Hillman's figures pertaining to the Rock Island and found an under-statement of $1,023,803 in the passenger expenses for the year covered, and that there was an over-statement of the net revenue. He also defended the locomotive ton-mile basis as the proper basis of division. Other rebuttal testimony was given by A. L. Conrad, assistant general auditor of the Atchison, Topeka & Santa Fe, and G. R. Martin, controller of the Great Northern.

SOUTH AFRICAN RAILWAYS LINKED UP.—The extension of the Upington railway line to Kalkfontein, north of Warmbad, has been completed, thus linking up the German lines with the Union system. This linking up constitutes a remarkable record, all material having been brought 400 miles.

International Railway General Foremen's Convention

Reports on Rods, Tires and Wheels, Shop Efficiency, Roundhouse Efficiency and Oxy-Acetylene Welding

The first session of the eleventh annual meeting of the International Railway General Foremen's Association was reported in the *Railway Age Gazette* of July 16, page 102, and the report of the committee on valves and valve gearing was given in abstract. The greater part of the first two sessions was devoted to the discussion of this report, which covered 65 pages in the advance sheets. One member strongly advocated the Stephenson valve gear for switch engines because of the variable lead which assists in starting. While the piston valve is accepted as the best all-around valve and is especially desirable on superheater locomotives, some roads have found that the slide valve could be made to work satisfactorily on these locomotives.

There is quite a difference of opinion regarding the use of superheater valve oil on superheater locomotives, some claiming that as good results could be obtained with Perfection oil, which gives less trouble in the gumming up of the air compressor ports. Some members reported favorable results with common gray iron piston valve bushings, while others believed that special metals give enough better service to warrant the additional expense. W. F. Lauer, of the Illinois Central, reported that on a test run with a superheater passenger locomotive fitted with Hunt-Spiller bushings and rings, 266,000 miles had been made using one pint of valve oil for every 65 miles. It was clearly shown that from the standpoint of economical operation it is very necessary to keep the valves in first-class condition, and with that end in view several roads require inspection every 30 days. The use of the piston valve accessories, such as vacuum valves, has been quite generally done away with. Good service records were reported for both the Baker and the Walschaert valve gears. Special stress was placed on the necessity for proper and careful design of valve gears. One of the most important claims made for the Baker gear is the standardization of parts for all locomotives.

RODS, TIES, WHEELS, ETC.

Rods.—One member of the committee on this subject favored the rectangular rod as against the I-beam rod, from the standpoint of maintenance, saying that the rectangular section is much less subject to fracture and that it is about 20 per cent cheaper to make. The material in the rod should be of mild steel, without welds. The forked end rod was recommended by one member, as it is much less difficult to maintain. Regarding the crank pin bearings in the side rod, one member favored the split brass and straps on heavy engines, for the reason that they can be kept to a closer fit than the bushing, and are much eaiser to keep in proper repair. One road is experimenting on large freight engines with cast iron crank pin bushings with babbitt blocks dovetailed in them.

One road has tried both brass and steel bushings for knuckle joints, and has found the steel to be more efficient. It was pretty generally conceded that all rods should be annealed at least every year or two. Among the many causes of broken rods and poor service are the rods being out of tram, the engine being out of tram, rod collars binding on the rod brasses, pins worn out of round, flaws in the straps or rods, engine out of quarter and engine not properly counterbalanced.

One road is using the electric welding process to build up worn places in the knuckle end of the rod and for welding small cracks in the jaws and rods to prevent them from getting larger. Another road finds it expedient to shim the side rod bushings and rebore them, stating that as much as 35,000 miles have thus been obtained on freight engines with but one set of bushings. It was recommended that cotter keys be placed in all main rod keys in conjunction with the two set screws, as too much care cannot be given to the back end main rod keys to prevent them from working out.

Tires.—It is recommended by one road that a lip be placed on all tires to facilitate the setting, and also to prevent the tires from creeping in when they become loose. The rim of the driving wheel centers should be 5 in. wide to give a proper bearing surface on the tire. One road recommends that the wear of the tire in the center should not exceed ¼ in., and that flat spots should be limited to 1/16 in. in passenger service and ⅛ in. in freight. The minimum thickness to which a tire may be worn will vary in the different services and on different roads. When the tires become thin the brakes should be watched to see that they do not drag. Retaining rings were recommended for passenger engines; the use of shims on new tires was believed to be bad practice. Cut flanges are caused by the driving wheels being out of square with the engine, the wheels out of tram, the side motion not properly distributed, the engine trucks leading to one side and the engine not being level on the frame.

The report is signed by A. A. Masters, chairman (D. & H.); W. G. Reyer (N. C. & St. L.); M. J. Hayes (C. H. & D.); A. D. Clark (C. G. W.); A. B. Corbett (M. K. & T.); W. T. Gale (C. & N. W.); W. F. Lauer (I. C.), and A. F. Taylor (M. St. P. & S. S. M.).

Discussion.—Several roads reported that they were discarding channel rods and applying the rectangular or slab rods on account of the channel rods breaking. On heavy engines a number of the members recommended strap ends for the middle connection, as it is much easier to keep them in proper conditions between general shopping periods, the bushing rods requiring too much labor to renew. Special metal, such as gun metal, has been used instead of brass for rod bushings, with very good success, if it is properly lubricated. Some roads have even used gray iron. Several members spoke strongly in favor of the automatic flange oiler, but it was pointed out that the engineman should be carefully instructed to handle it properly, or that its manipulation be placed in the hands of the engine inspector at the terminal.

Several methods were reported for heating the tires, the cheapest being that where wood was used as a fuel, the wood, of course, being scrap material. The Soo Line reported that tires could be applied at a cost of 16 cents apiece where wood was used for the heating medium. Several roads reported that they were using cast iron for hub liners, while some used no hub liners until the wheels become sufficiently worn, when bronze is used. Some roads place a definite age limit on driving axles and crank pins, believing that after a short time the metal is liable to fail. This, of course, depends on the quality of steel used on the locomotive.

SHOP EFFICIENCY

The greatest factor in effecting and maintaining shop efficiency is competent supervision. Competent supervision, insuring competent workmen, makes it possible for an old shop, with less modern tools and facilities, to not only equal but exceed the output of the modern shop with the latest improved facilities, but poorly supervised. The foreman or the gang foreman who is in direct touch with the individual workman is the man who is largely responsible for efficiency, and his qualifications necessarily must be many. A combination of executive and mechanical ability is to be desired, and if he lacks in either, it is better that his executive ability be the greater.

Close supervision is conceded to be profitable, and no foreman should have under him more men than he can keep in touch with intelligently. He should be able not only to know what each man is doing, but how he is doing it.

Shop Schedules.—No shop can be efficient unless there is a fixed time set for the completion of repairs to the engines. There is no real need of an elaborate schedule which covers the time each separate part of an engine must be finished, but there

is an absolute need of a schedule which allows a certain number of hours for each class of repairs handled, consistent with the facilities. If, by reason of financial depression it is necessary to operate, say a 20-pit shop, with only enough men to properly handle 10 engines, put but 10 engines in the shop and get them out as quickly as possible, as even with the closest kind of supervision and checking of labor and material charges, the cost of repairs on 20 engines handled with a 10-engine force will be way above the usual cost of repairs, when engines are repaired in their usual time. There are a number of logical reasons for this, but I will mention only two: The first and principal reason in a shop which has been working full force under a satisfactory schedule is, of course, the changes which must unquestionably be made in the schedule time, thus disorganizing systems, and making for confusion and its attendant delay.

The second reason is the noticeable relaxation of efforts of the working forces which, under a short schedule, were keyed to a much higher pitch and the need of haste to get work completed on time kept men energetic and active; lengthening of the schedule has seemingly indicated to them that the need of haste has been obviated and that they now have lots of time, and it is a difficult matter to keep them from taking it. Schedule time as short as consistent with conditions makes for efficiency.

Facilities.—Modern facilities make for efficiency and where an improved tool or appliance will show a consistent increased output sufficient to pay a good rate of interest on the investment, it should be bought and installed.

Too often a shop's efficiency is retarded by reason of the initial cost of tools or appliances being considered rather than the ultimate profit that would be made with them. Then again, tools or appliances are purchased because of their price rather than their worth, and because they do not duplicate the output or come up to the standard of some similar tool or appliance, higher priced and of higher efficiency, men in charge are criticized and oftentimes termed incompetent

Tool Room.—In a large shop where mechanics get their own tools on checks from the tool room, the delay of a minute multiplied by the number of times they occur in a day and by the number of men affected runs into hours, which in turn mean dollars. Therefore, energetic, quick moving and thinking men who know the condition of all tools in their charge, and who do not leave a defective tool where it may get in service are necessary.

Apprentices.—An apprentice makes for efficiency in proportion to the amount of interest he shows and the amount of interest that is taken in him. Select boys with as good an education as possible and who have a real desire to master the trade they wish to follow. Give the boy every opportunity to thoroughly learn his trade. Apprentice schools increase the efficiency in some shops—why not schools in all shops?

Shop Demonstrator.—A thoroughly competent demonstrator in a shop of any size is an absolute necessity. It is through his efforts largely that maximum capacity of machine output is obtained. He is invaluable because of his intimate knowledge of machines, enabling him to break in a new machine or a new operator on any machine which is at all complex. His work is not confined to machines, but to any proposition which needs close checking to insure results.

Store Department.—The store department can increase the efficiency by keeping a stock consistent with the mechanical deparment's needs and the prompt shipment of necessary material to the unfortunately located foreman of shops at an outside point where only stock common to ordinary requirements is carried. When it is considered that, as stated by G. S. Goodwin, in a paper read before the Western Railway Club of Chicago last February, the average value of a locomotive's services through the United States was $44 a day, it is problematical whether the cause of efficiency is best served by the store department keeping material so low that at any time it makes for an engine delay. The problem should be given the most careful analysis.

Shop Appearance.—Shops should be roomy and well ventilated, windows so designed and lighting systems so planned that there are no dark spaces and glare of sun or lights so modified that the eyes of employees are not subjected to any undue strain; lockers and toilet rooms sufficient for the convenience of all employees should be installed and maintained in an absolutely sanitary condition.

The report is signed by Geo. H. Logan (C. & N. W.), chairman; J. M. Kerwin (C. R. I. & P.); J. C. Newmarch (N. Y. C. West); C. M. Newman (A. C. L.); J. Miller (I. C.); E. E. Griest (Penn. Lines); F. A. Byers (S. L. & S. F.); Wm. Smith (P. L. & E.), and W. T. Abbington (C. & N. W.).

Discussion.—Most men find that the scheduling of the locomotive parts through the shop is desirable, some roads going into more detail than others. On the St. Louis & San Francisco at Springfield, Mo., a man is assigned to the routing of the material through the shop, and is sort of an assistant to the general foreman. Another man devotes his whole time to checking up material, making shortage reports every day, and keeping after the store department for the material needed. The routing man also makes a daily report and red marks the work that is behind. On the Santa Fe a material man works in conjunction with the shop and store department.

On the Delaware, Lackawanna & Western a special committee inspects and passes on new devices or inventions presented by the employees, and if these devices are accepted for use the employees are paid for them. Other roads obtain the patent rights for the men with the understanding that the devices can be on the roads without the payment of royalty.

ROUNDHOUSE EFFICIENCY

The roundhouse is the connecting link between the mechanical and transportation departments. A well-equipped roundhouse will do much towards strengthening this link, and it is time that more attention be paid to its construction and equipment, so that it may be brought up to the highest state of efficiency. Too much of the details of the construction of roundhouses is in the hands of the engineering department, and too little in the hands of the man who is on the ground, who has to furnish the power for moving trains, and who knows more than anyone what is required for the highest state of efficiency. To the roundhouse foreman belongs the responsibility for engine delays, engine failures, engine mileage, cost of despatching, etc., and therefore his ideas and recommendations should receive the first consideration. Good light, heat and ventilation are important for facilitating roundhouse repairs, for in order to get good results from the employees' conditions should be equal to those of the repair shop. Lockers and adequate toilet facilities should also be provided.

Equipment.—Drop pits for driving wheels, engine and tender wheels should be in all roundhouses where running repairs are required to any extent. An engine may be kept out of the repair shop indefinitely by dropping the driving wheels for repairs to driving boxes, turning tires, etc. Overhead cranes or trolleys should be arranged for removing dome caps, front end doors, bumper beams, etc. Washing out systems effect a great saving as well as protecting the boiler against leaking flues, and all roundhouses should have hot water and plenty of it for washing and filling boilers. Storage tanks, or sumps, should be made large enough to take care of all the water that is blown from the boilers; it should then be used for washing out, reclaiming all of the water by filtration.

There are instances of roundhouses equipped entirely with old tools discarded by the repair shop. This is a short sighted policy. The tools for the roundhouse should be the very best, especially where it is isolated from the repair shop, and it would seem that the repair shop should take the old tools rather than the roundhouse, because the repair shop is in a better position to make repairs to them than the roundhouse.

Roundhouse piping is a subject for consideration. It would seem that the only proper and safe way to install the piping is in

conduits of sufficient size to hold all the pipes and provide easy access should repairs be necessary. No sewer pipe leading from the roundhouse should be less than ten inches in diameter and preferably 12 in. Engine house pits, especially drop pits, not properly drained, dispel an odor causing dissatisfaction among the employees, and are also unhealthy.

There should be two inbound tracks with an emergency run-around track and two outbound tracks. The inbound tracks should be of sufficient length to admit of a water crane a reasonable distance from the entrance so that engines coming in from the road leaking and having low water in the tender can be given water. Otherwise with engines ahead, they will die before getting into the house, causing delay. There should be about 350 ft. between the water crane and the coal chute so that after taking water the engines may move ahead to wait their turn for coaling. There should be at least 600 ft. between the coal chute and turntable to allow for engines standing after taking coal.

To prevent damage to cars by fire from hot cinders pits containing several feet of water are being constructed so that the cinders can be dumped from the engine into the water. The Chicago & Western Indiana load cinders with clam shells, the cinder pits containing water to the depth of 7 ft. The cinders are loaded into cars at a cost of about twelve cents per car. These cinders are sold to the track elevation department for $3 per car, for which the roundhouse is credited. Water cranes should be located, one at the entrance of the inbound tracks, one on the inbound tracks between the cinder pit and turntable and one on the outbound tracks.

The office and store house should be combined into one building conveniently close to a track for loading and unloading purposes and should be made fire proof.

Cleaning engines, on a number of roads, is being discontinued on account of the expense. This would not appear to be a good policy for the reason that the defects are liable to be covered up and may not be detected by the engine inspectors. There are several mechanical devices for cleaning engines, which bring the cost down so much lower than the hand cleaning, that it does not seem that a railroad can afford to entirely dispense with cleaning.

The report is signed by: N. B. Whitsel (C. & W. I.), chairman; H. W. Ensign (C. G. W.); Chas. Snyder (A. T. & S. F.); E. J. Buckbee (C. C. C. & St. L.); W S. Whitford (C. & N. W.); S. J. Harper (Y. & M. V.); W. B Middleton (A. C. I.); and F. R. Butler (C. & O.).

Discussion.—Those roads that are equipped with electric cranes in the roundhouse are very strongly in favor of them, and believes that they are indispensable. Some roads use jib cranes at the posts between the pits. A number of roads also find the use of portable lathes valuable. One road has a satisfactory arrangement of drainage providing settling boxes in the sewer line to catch the waste and sediment. These boxes are cleaned every week at a small cost. Roads cleaning engines by washing with a mixture of oil and water under pressure find that the work is done very satisfactorily. On the Delaware, Lackawanna & Western a large Mikado engine can be cleaned in about 15 minutes, by this process at a cost of not more than 30 cents. A mixture of 75 gal. of water to 1 gal. of oil is used with a pressure of 90 lb., the pressure being taken from the air line in the yards. This method of cleaning not only gives the locomotive a very neat appearance and does the work economically, but it keeps all the parts clean and free from grease, which makes more perfect inspection possible.

OXY-ACETYLENE WELDING

The oxy-acetylene process of welding and cutting metals has during the past few years been adopted by many of the principal railroads. It is doubtful, however, whether any of the present installations are of as great capacity as will eventually prove necessary to handle the volume of work which can be most efficiently performed by this process. As far as is known, the largest single oxy-acetylene installation is that at the Springfield shop of the St. Louis & San Francisco. This plant, in addition to the ten others on the Frisco System, was furnished and installed by the Oxweld Railroad Service Company. The oxygen generators are of the duplex type and 1,000 cu. ft. capacity. The oxygen used is purchased from the Linde Air Products Company, being delivered to the road in 100 and 250 cu. ft. cylinders. These are connected to a duplex manifold which makes it possible to remove and replace cylinders without cutting off the gas supply to the shop. In all of the Frisco plants* the oxygen and acetylene gases are piped throughout the shop, stations being placed at convenient intervals to serve the various departments.

The only trouble which has ever been experienced with oxy-acetylene welds has been due to the inefficiency or inexperience of the operators. On the Frisco welders are selected from among the best journeymen of the various trades. No handy-men or apprentices are used on any class of work whatever. The mechanics who are selected are given a four months' course of training under an expert. By this system a corps of more than seventy expert welders has been trained on the Frisco System, and the work which is being turned out of the shops today is of first quality.

The Frisco with first-class boilermakers as burner operators is handling all classes of boiler work with unvarying success. It is the present practice to weld in all part sheets, whole sheets and seams of complete boxes. This method is more economical than riveting as to initial cost, and also represents a great saving in subsequent repairs required at roundhouses.

During the past two years all broken frames have been welded by the oxy-acetylene process, which has proved itself not only cheaper, but more satisfactory than any method previously used. The percentage of failures on frame welds when competent operators, usually blacksmiths, were used has been zero. This process has no limitations as to classes of metal; brass, cast, malleable and wrought iron or steel being welded with equal facility.

The New York Central at the Collinwood shops use both the electric and oxy-acetylene welding process. The latter is used principally for boiler work in welding and cutting. The electric process has been found of special advantage in welding flues in flue sheets, very good results having been obtained from this practice.

The Chicago, Rock Island & Pacific at Silvis, Ill., operate both systems but still adhere to the use of Thermit for all frame welds.

The report is signed by: F. A. Byers (St. L. & S. F.), chairman; J. M. Kerwin (C. R. I. & P.), and I. C. Newmarch (N. Y. C. West).

Discussion.—A large number of interesting jobs were mentioned as being done by both the electric and oxy-acetylene processes, showing that as the operation of these systems becomes better known the opportunities increase. It was shown that in order to be used successfully the operators must be expert and have a thorough understanding of the art of welding, the varying successes on different roads on the same class of work making this clearly evident.

CLOSING EXERCISES

During the Thursday session an address on the Selection of Men and Their Promotion was made by Roy V. Wright, managing editor of the *Railway Age Gazette*. The necessity of having the officers and foremen study their men more critically was emphasized.

The following officers were elected for the ensuing year: President, L. A. North, superintendent of shops, Illinois Central, Chicago, Ill.; first vice-president, Walter Smith, general foreman, Chicago & North Western, Deadwood, S. D.; second vice-president, W. T. Gale, foreman, Chicago & North Western,

*For a complete description of these plants and the work done see the *Railway Age Gazette* of September 11, 1914.

Chicago, Ill.; third vice-president, W. G. Reyer, general foreman, Nashville, Chattanooga & St. Louis, Nashville, Tenn.; fourth vice-president, C. L. Dickert, assistant master mechanic, Central of Georgia, Macon, Ga.; secretary-treasurer, William Hall, foreman, Chicago & North Western, Winona, Minn.

NEW LEHIGH VALLEY PASSENGER AND FREIGHT TERMINALS AT BUFFALO

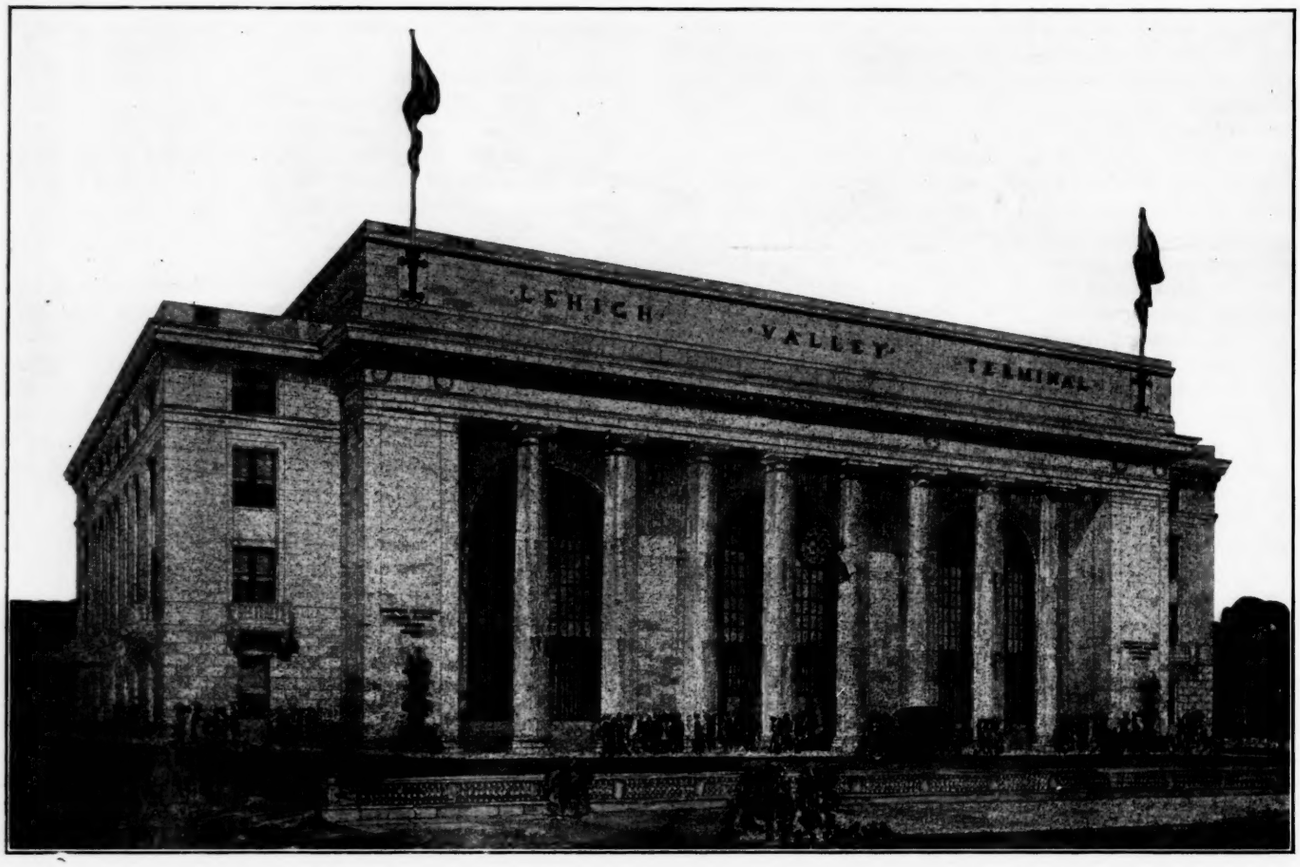
The Lehigh Valley has recently started the construction of complete new passenger and local freight terminals at Buffalo to replace the present facilities which have become inadequate for the traffic. The passenger station, located between Main, Quay, Washington and Scott streets will be a four story structure of gray Indiana limestone with a granite base and terra cotta trimmings. The building will be set back 50 ft. from the east line of Main street to provide for a driveway and approach to the main entrance. It will have a frontage of 164 ft. on Main street and will extend back 102 ft. on Scott street. The areaway between the north side of the building and Quay street will be paved, providing standing room for cabs and another driveway to the building. On the Washington street side an open area 50 ft. wide will be given over to a grass plot. Coming through the main entrance on Main street or from Quay street, one enters immediately into the main waiting room 82 ft. by 102 ft. in area and the full height of the building. Three large arched windows will be provided on the Main street side and smaller windows on the other sides in addition to large skylights in the roof. Marble will be used for the floors and wainscoting of this room. A lunch room and restaurant will be located on the Quay street side of the waiting room, while on the Scott street side there will be a smoking room, a women's room and retiring rooms for both men and women. Adequate space will be provided for the telephone, telegraph, news-stands, parcel rooms, etc. A hospital room will also be provided in the station.

Offices will be provided on the Main street side of the building on the second, third and fourth floors for the use of the Lehigh Valley and tenant companies. These offices will be provided with double elevator service and with independent stairways.

A ramp will lead from the waiting room to a tunnel under Washington street, providing access to trains. At the opposite end of the tunnel there will be another ramp bringing passengers to the street level, the headhouse and the train shed.

The headhouse will be a two-story steel-encased building set back 20 ft. from the building line on the east side of Washington street. It will have a frontage on this street of 181 ft., and a depth of 100 ft. on Scott street. In outward appearance the building will be of gray brick with granite base and terra cotta trimmings in harmony with the station proper.

On the first floor of the headhouse a baggage room will be provided with an area of 4,300 sq. ft., 3 independent express rooms with a total area of 4,600 sq. ft., and a mail room of 1,200 sq. ft. A concourse 181 ft. long will extend across the full length of the building with a total area of 5,600 sq. ft., and will be open to the roof. At one end there will be another cabstand. Exits will be provided on Scott street and on the areaway on the north side. The ramp from the tunnel under Washington street will lead directly to this concourse. Seats will be provided here as well as in the main waiting room.



Architect's Drawing of the Main Street Side of the Proposed Passenger Station

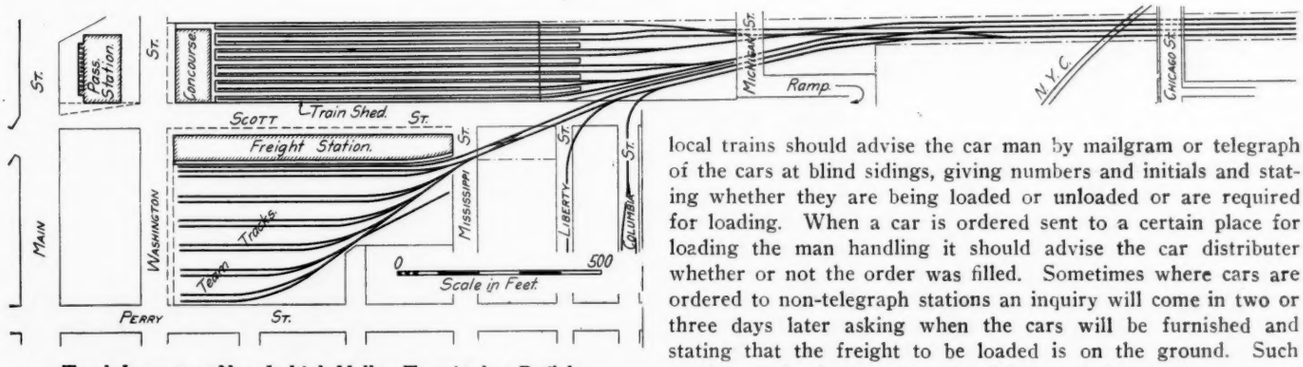
Provisions will be made for immigrant travelers on the second floor of the headhouse where separate rooms will be provided for men and women, for the exclusive use of this class of travel. There will also be lounging rooms and lockers for enginemen, firemen, conductors, trainmen and Pullman and station employees on this floor.

The train shed will be 195 ft. wide and 842 ft. long and will provide for 10 tracks. The Bush type of concrete and steel shed with Keppler skylights has been adopted, requiring more than

50,000 sq. ft. of glass. The platforms will be of concrete, built at an elevation 8 in. above the top of rail.

The freight terminal will be located between Washington, Scott, Quay, Perry and Mississippi streets. A two-story office building of steel encased construction with a granite base and terra cotta trimming, in harmony with the passenger buildings, will be located 15 ft. from the east line of Washington street and 18 ft. from the south side of Scott street, having a 60 ft. frontage on Washington street and being 111 ft. deep. Connected directly with this building will be the freight house proper, a steel and concrete structure divided into three separate sections by fire walls. The building itself is 600 ft. in length, while each section is 191 ft. long and 60 ft. wide. Natural illumination will be provided by a continuous line of sashes around the entire house just above the doors and daylight will enter from all four sides. The floors of the freight house and the platforms on either side will be of concrete. The platforms will be 10 ft. wide, while there will be a ramp on the track side leading to the ground at either end. A line of steel curtain doors will be provided on both sides with steel canopies above. The areaway between Scott street and the freight house will be paved with Belgian blocks, while the two tracks on the opposite side will provide room for 32 cars.

Beyond the two freight house tracks there will be 11 team tracks spaced 45 ft. between pairs. The driveways will be paved with Belgian blocks, while an electric crane will be provided to handle heavy materials. A concrete wall 8 ft. high will surround the entire block occupied by the freight terminal with the exception of that portion occupied by the office building and freight house proper. An all-electric interlocking plant housed in a brick and steel tower will govern the entrance to the terminal.



Track Layout at New Lehigh Valley Terminal at Buffalo

THE CAR DISTRIBUTER

By J. L. Coss,

Assistant Chief Despatcher, Chicago, Rock Island & Pacific, Haileyville, Okla.

On heavy divisions a car distributer is usually employed to distribute cars, as the chief despatcher cannot do this in addition to his other duties. This man fills a position which is of more importance than the average person appreciates. The quick handling of cars is essential; therefore, it requires a man who can place them promptly for loading and at the same time do it with the least expense. The position should be made attractive enough to secure the right kind of a man—one who will stay with the job and who has an ambition for something better; for the service required will not be obtained when frequent changes are made. Where business is heavy and especially where there are several industries to serve, the position should pay at least $125 per month. There should also be another incentive. When there are vacancies in the general office of the car accountant, transfer to which would be a promotion to the car men on the road, they should be given a chance at them.

A first-class car distributer should have a thorough knowledge of the geography of the surrounding country, the different railroad connections, etc. He should have the different series of cars in use on his system committed to memory and should acquaint himself as far as possible with those in use on direct connecting lines so that when a car number comes before him he will not have to refer to the Equipment Register to ascertain whether it is a box, stock, flat or passenger car. He should also be familiar with the M. C. B. rules in order to be in a position to act when a defective car is to be interchanged and he cannot communicate with higher officers on the subject. An idea as to the construction of a car will help out many times when a car is "bad-ordered" on the road and disposition is desired.

The agents and yardmasters should be so drilled that their car reports, both by wire and mail, will be promptly transmitted at the appointed time and not an hour later; if any fail in this the superintendent should apply a remedy at once to prevent a repitition because the car distributer cannot do his work efficiently without knowing what cars are on the line and the requirements at the different stations. When these reports are received he should make a thorough check in order to fill the orders for the next day and at the same time rid the division of any foreign cars not needed for immediate loading. It will also be necessary to haul some empty cars for loading and he should figure on the short haul for them. He should place his orders for empties with the yardmasters far enough in advance to insure their being put in the trains and not make it necessary for trains to be reduced to put them on. At the end of their runs conductors of local trains should advise the car man by mailgram or telegraph of the cars at blind sidings, giving numbers and initials and stating whether they are being loaded or unloaded or are required for loading. When a car is ordered sent to a certain place for loading the man handling it should advise the car distributer whether or not the order was filled. Sometimes where cars are ordered to non-telegraph stations an inquiry will come in two or three days later asking when the cars will be furnished and stating that the freight to be loaded is on the ground. Such service results in law suits for delays and damages.

The car distributer should be furnished with a copy of each conductor's report and have access to the index book at the yard office where he is located. In tracing cars and handling diversion orders the telegraph service is severely abused because many car distributers will not avail themselves of the information at hand; for instance, they can check the conductor's wheel reports, index books and agents' and yardmasters' car reports and secure a great deal of information which will be of value in tracing cars, and filling orders for empty cars. It has been noticed that some large yards do not make a daily car report showing the record of individual cars into and out of the yard, on hand, etc., claiming insufficient force. The time consumed by operators sending telegrams concerning cars would more than offset the salary of a clerk to make such a report in the yard office.

All inquiries concerning cars should be referred to the car distributer and handled by him and not by other employees in the division office. Then he is familiar with what is going on and there is no chance for a duplication of messages, mailgrams and letters; this will also insure against agents and yardmasters having to answer two or three inquiries concerning a certain car, a practice which has a tendency to cause them to become negligent in making replies.

The car distributer should also be qualified as a telegrapher for the reason that he can communicate direct with the different agents' and yardmasters' offices, by the use of the instrument, secure information that will assist him in making a quick disposition of cars, and secure tracing and diversion records, when if he has to wait until telegrams take the regular course he may

be delayed and in the end have to cause more telegraphing by sending wire tracers for answers to messages he has filed previously.

THE METROPOLIS BRIDGE OVER THE OHIO RIVER

Work has recently been started on the construction of a new double-track bridge over a mile long across the Ohio river at Metropolis, Ill., including a span 722 ft. 11 in. center to center of piers, over 50 ft. longer than any other simple truss span in the world. The bridge, together with a railroad 15 miles long connecting Paducah, Ky., and Metropolis, Ill., is being built by the Paducah & Illinois Railroad, which is owned jointly by the Chicago, Burlington & Quincy and the Nashville, Chattanooga & St. Louis, and will serve as a connection between these two roads.

The bridge will consist of a channel span 723 ft. long on the south side of the river, four spans each about 555 ft. long and a 304 ft. span on the north side, all pin-connected trusses of the Petit type. South of the long channel span there will be a deck truss 250 ft. long. The bridge provides for two tracks spaced 13 ft. center to center, while the through truss spans will provide a side clearance of 8 ft. and a vertical clearance of 22 ft. above top of rail. There will be a viaduct approach on each end, made up of 30 ft. tower spans with clear spans varying from 65 to 90 ft. in length. At one point in the north approach there will be four girder spans in succession with high masonry piers for intermediate supports, one of them on a skew, to provide for railroad tracks under the structure. The south approach is 600 ft. long, while that on the north is 1,590 ft. long. Both approaches will end in pocket abutments, resting on piles driven into the end of the embankments, the one on the south end being 75 ft. high, and that on the north 40 ft. high.

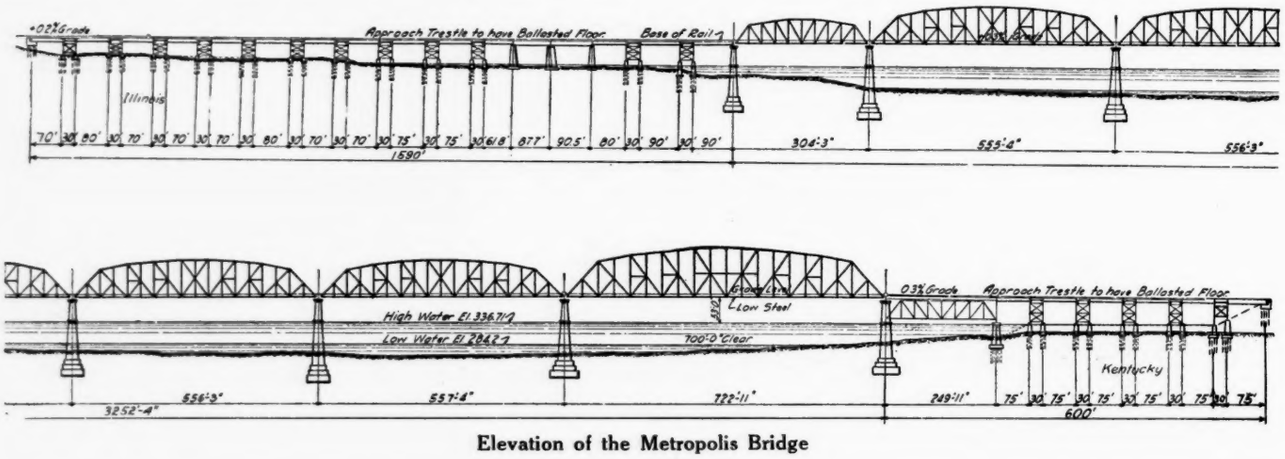
The total length of the bridge is 5,442 ft. The track on the channel span will be on a level grade 113 ft. above low water. The rest of the structure will be on 0.3 per cent approach grades descending each way from the channel span. There will be 53 ft. of clear head room above high water, which is 52.7 ft. above low water. The seven river piers will require pneumatic foundations carried to a thick stratum of sharp white quartz sand about 75 ft. below low water, which sand extends to bed rock, about 230 ft. below low water. The viaduct approaches will be on concrete pile and spread foundations, the latter being on a compacted gravel.

The design of this bridge involved a departure from usual practice in the use of a much higher live loading than that actually existing at the present time, in conjunction with high unit stresses, in order to insure greater uniformity of stress in all parts of the structure when the high live loading is ultimately realized. The live load on the trusses consists of two Cooper's E-90 engines, followed by 7,500 lb. per foot of track for the near track and a uniform load of 7,500 lb. per foot of track for the far track, except on floors, hangers and sub-diagonals where the load will be two E-90 engines on each track. The impact per cent to be added to live load stresses is 10 per cent in all members except hangers and sub-diagonals, and the web members of the 246 ft. and the 300 ft. spans. On the latter 20 per cent is added, while on the floor, hangers and the sub-diagonals 50 per cent of the live load for one track is added. The designing stress for tension and bending under full live load, impact load, and dead load is 20,000 lb. per square inch for medium steel, 30,000 lb per sq. in. on silicon steel, and 35,000 lb. per square inch for nickel steel eyebars.

The contract for the structural steel and the erection has been let to the American Bridge Company, and it will be, for the most part, fabricated at the Gary plant. The Union Bridge & Construction Company of Kansas City has the contract for all piers requiring pneumatic foundations, and is now at work on the caisson for Pier No. 1. All other masonry work will be done by company forces.

The approach embankment at the south end of the structure is 70 ft. high for a distance of 1,800 ft., continuing as a much lower embankment for an additional distance of 6,000 ft., and contains in all 855,900 cu. yd. The heavy portion of this embankment is being built by steam shovels. The fill at the north end of the bridge is 6,000 ft. long, averaging 15 ft. in height and contains 140,600 cu. yd.

The line between Paducah and Metropolis, including the approaches to the Metropolis bridge, is being built with embankments and cuts for single track and with all structures providing for double track. It is expected that the line will be completed about August 1. The estimated time for the completion of the bridge is from 2½ to 3 years, but in order not to delay the use of the rest of the property until that time, inclines are being provided at each side of the river to permit the transfer of trains across the river by car ferry.



Elevation of the Metropolis Bridge

The bridge was designed by and is being constructed under the direction of C. H. Cartlidge, chief engineer of the Paducah & Illinois Railroad, and bridge engineer of the Chicago, Burlington & Quincy, all plans and specifications being approved by Ralph Modjeski, consulting engineer, Chicago.

SWISS RAILWAYS AND THE WAR.—Perhaps in no country in Europe has railway construction and railway engineering work in general been more affected by the war than in Switzerland. It is true that work is proceeding upon the great enterprises on which it had already been begun when war broke out, such as the second Simplon tunnel, the Hauenstein Base tunnel, the Muenster-Grenchenberg tunnel, and the Frasne-Vallorbe line; but it is certain that there will not be for a long time to come any new developments of new mountain railways, for several of which concessions had already been obtained.

Proposed Bureau for Clearing Car Repair Accounts*

Organization to Be Supervised by the American Railway Association or the Master Car Builders' Association

By C. F. Straub

The idea of traveling M. C. B. inspectors in the employ and under the supervision of the American Railway Association or the Master Car Builders' Association, as recently suggested by a car department officer in one of the railroad journals, is undoubtedly a good one. It would obviate a great deal of discussion regarding improper charges on M. C. B. repair cards. It would in time eliminate the suspicion that strict honesty is not always adhered to by those handling M. C. B. charges, due, it is said, to overzealousness in attempting to make good showings in departmental expenses, which is too often thought to be condoned by higher officers.

The writer has been engaged for a number of years in the detail work of M. C. B. billing, accounting and correspondence, including the direction and instruction of car shop clerks and car inspectors in the issuing of repair cards and entering the charges thereon, and has felt the need for such inspectors; he would, however, propose going a step further, in the establishment of a clearing house for the settlement of car repair accounts.

By creating a bureau to handle these accounts, either under the jurisdiction of American Railway Association or Master Car Builders' Association, the matter of M. C. B. billing could be placed on an economical and efficient basis and benefits would accrue which no doubt have been and now are, apparent to every railroad officer and employee who is familiar with the amount of work involved in the present method of handling. So far as is known, no one has yet presented a sufficiently definite plan to warrant the consideration of either association and year after year the needless waste goes on.

The proposed bureau should be organized somewhat as follows: After a sufficient number of companies who are members of the M. C. B. Association, have subscribed to the new plan the bureau could be established by the appointment of a manager and a number of assistants. The manager should have had a number of years' experience in M. C. B. general office bill work and should be instructed to select his staff of leading assistants from applicants who are qualified M. C. B. billing clerks, so located geographically that different parts of the country are represented. Such men, it is suggested should be retained on the payroll of the company employing them at the time of their appointment and the amount of their salaries billed monthly against the bureau; the manager of the bureau, however, should have entire jurisdiction over them, even to the fixing of salaries. This plan would not only insure the maintenance of a competent staff but in justice to the men would permit them to retain the benefits accruing from long service records with the railroads; it would at once place the bureau in a position to meet the approval of everyone concerned. A corps of M. C. B. inspectors, the need for which has been referred to, would be a part of the bureau organization.

Each company would forward to the bureau, either monthly or semi-monthly, properly assorted, all of its billing repair cards. The bureau would then make up credit bills in favor of each company, without showing car numbers or details. This would mean that, instead of a large company making up several hundred bills, some having 300 or more pages, containing 12,000 or more car numbers and showing charges in detail, there would be but one bill to debit the bureau. The repair cards would then be appropriately stamped by the bureau (mechanically, somewhat as letters are stamped in large postoffices) showing that credit had been allowed the issuing company, and the charges then entered in the balance sheet in the credit column of the issuing company opposite the names of the various debtor companies. By referring to the proposed form of balance sheet shown in the illustration it will be seen that when the credit entries of all the member companies have been properly made both the total credits and the total debits of each company are directly obtainable. In the form illustrated no detail entries are given but totals are shown, the number of dollars in each case being equivalent to the number of cars owned according to the 1914 Proceedings of the Master Car Builders' Association.

M. C. B. CLEARING HOUSE

BALANCE SHEET OF CHARGES FOR FREIGHT TRAIN CAR REPAIRS, PER M.C.B. BILLING REPAIR CARDS AND DEFECT CARDS

MARCH 1915	A.T.& S.F.	B. & O.	BOS. & ME.	CAN. PAC.	C.B.& Q.	D.L.& W.	ERIE	G.T.RY.	ILL.CENT.	L.V.R.R.	MICH.CENT.	N.Y.C.	PENNA	PHILA.& RDG.	SOU. RY.	UNION PAC.	TOTAL CHARGES
A.T.& S.F.																	71,463 10
B. & O.																	91,953 20
BOS. & ME.																	28,280 30
CAN. PAC.																	98,404 40
C.B.& Q.																	67,313 50
D.L.& W.																	29,000 60
ERIE																	58,374 70
G.T. RY.																	50,028 80
ILL. CENT.																	65,147 90
L.V. R.R.																	47,467 00
MICH. CEN.																	27,372 10
N.Y.C.																	79,176 20
PENNA.																	177,559 30
PHILA.& RDG.																	43,176 40
SOU. RY.																	52,978 50
UNION PAC.																	28,062 60
TOTAL CREDITS	71,463 10	91,953 20	28,280 30	98,404 40	67,313 50	29,000 60	58,374 70	50,028 80	65,147 90	47,467 00	27,372 10	79,176 20	177,559 30	43,176 40	52,978 50	28,062 60	1,015,758 60

Suggested Form of Clearing House Balance Sheet

*Copyright, 1915, by C. F. Straub.

The use of these figures is based upon the fact that on some roads the amounts of monthly credits and debits account of interchange car repairs have each been found to average approximately one dollar per car owned; they may be considered as representative of the amounts which would be involved in the clearing house transactions.

The bureau staff handling the credits and charges would be interested only in the proper charges on repair cards, and being experienced in M. C. B. billing, would be qualified and authorized to make such changes and corrections as to make the cards eligible for billing, or return them to the issuing company for correction. This would eliminate all checking of bills by the railroads except as to the location of cars by the car record office, which could readily be done from the repair cards. The cards for such cars as did not check with the car accountant's records could be returne dto the bureau and proper credit allowed. The bureau could then return the cards to the issuing company for correction and deduct the amount of the charges from the next credit bill in favor of the issuing company, permitting the return of the cards to the bureau for rebilling only after they had been endorsed by that company's car record office showing the interchange record. Under the bureau plan repair cards would not be given the close supervision in the offices of department heads which they now receive and such supervision should be given at the shops and inspection points as to insure the least possible amount of correspondence with the bureau. Each company should endeavor to send its repair cards to the bureau as nearly correct as possible.

It has been the writer's purpose to go into detail far enough so that it may be readily understood that the plan is feasible. No doubt objections may be raised, perhaps the greatest one of which is the vast number of private car lines. However, if the railroads once put the bureau plan into operation there will certainly be enough such owners who will at once recognize its benefits to start a movement in favor of a bureau of their own if they do not care to become members of the railroad bureau. A separate bureau would probably be found to be the best plan, and it is believed would receive the endorsement of the greater number of private owners. All matters pertaining to repairs to privately owned cars would then be settled between the two bureaus.

It is obvious that considerable expense, on some roads thousands of dollars each year, would be saved by handling but one credit and one debit bill each month, instead of several hundred as at present. Also in the operation of the bureau, mechanical devices could be extensively employed, the use of which is entirely impracticable under the present unit system of billing. On railroad systems having an average monthly credit and debit for interchange car repairs of from $40,000 to $45,000, it is safe to say that a net saving can be effected of from $8,000 to $10,000 per annum, including stationery, postage, clerk hire, etc., in the motive power and accounting departments.

The cost of operating the bureau should be apportioned among the members monthly on the basis of the amount of both credit and debit repair accounts. The bills rendered on this account should be separate from those rendered on account of car repairs.

The advantages of the bureau system may be briefly summed up as follows:

1. Elimination of the suspicion of dishonesty and unfair practices.

2. Elimination of a vast amount of correspondence, due to exceptions to charges, wrong car numbers, etc.

3. Several hundred accounts of bills payable consolidated into one account and *closed* as soon as received.

4. Several hundred accounts of bills receivable consolidated into one account and *closed* as soon as received.

5. Postage saved by elimination of multiplicity of bills and correspondence in connection therewith.

6. Of the gross amount saved by each company, possibly not more than 20 per cent would be required to meet its share of the cost of maintaining the bureau.

It is the hope of the writer that he may some day see such a plan tried out and its feasibility proven. It seems as though the time were ripe for action to that end by either the American Railway Association, the Master Car Builders' Association or the Accounting Officers' Association.

HUNTING STRAY FREIGHT ON THE PENNSYLVANIA

The Over and Short Bureau of the Car Record office of the Pennsylvania Railroad, at Philadelphia, under the charge of T. S. Bell, receives about 2,500 over and short reports daily, reports being made to this office by all stations on the Pennsylvania and its controlled lines east of Pittsburgh and Erie; and an ingeniously devised index has been put in use for the purpose of matching the overs with the shorts; that is, for satisfying, as far as possible, all reports of freight short by discovering the missing goods at some other station. This is accomplished by carefully searching the records of all the over reports which are received within the next 10 or 15 days after the date on which the freight reported short began or should have begun its journey; searches are begun, usually, about the tenth day. For a large proportion of the shipments or packages which go astray the clerk, with little trouble, finds an over report and a short report which match each other; and, indeed, many cases are, of course, settled by the station agents without troubling the head office at all; but the system here referred to deals with those cases which cannot be cleared up without some little study; perhaps two or three hundred daily. Of these a considerable portion can be settled readily by correspondence. Many others require more particular treatment, and the office employs twenty-four men who are on the road, most of the time, searching for lost goods and making other investigations incident to the proper treatment of freight claims of all kinds. Classes of shortage which cannot be readily settled are those where the corresponding "over" is on another road and is not reported; or where thieves have stolen the goods. A record of this kind should be looked upon as an essential feature of the service, even if costly; but there have been gratifying results from a financial standpoint. In a typical week the number of lost shipments located was 50, involving claims amounting to $2,056; and in the same time 93 shipments, for which claims had not been presented.

The essential feature of this over and short record is the combination of four indexes in one. The clerk has before him four sheets; and each item is entered on all four. In the first one the shipment in hand is indexed alphabetically by the name of the originating point; in the second it is indexed, on a line bearing the same number, under the name of the station to which it is billed; in the third by the name of the consignee, and in the fourth by the name of the commodity.

The illustration shows a set of index blanks as arranged for use, the engraving being reduced about two-thirds in width and height. These four indexes, consisting each of 24 sheets, fastened one above another, are arranged on a board 21 in. wide and 14 in. high, the sheets being held at the top by strong clips. In the photograph diameters are reduced as stated, and to further save space, about *one-half* of each sheet has been cut out, viz., lines 4 to 24 inclusive and lines 41 to 56 inclusive. Sheet B has one more line than Sheet A; C has one more than B and so on, this arrangement having been found the best to facilitate the quick uncovering of any given sheet.

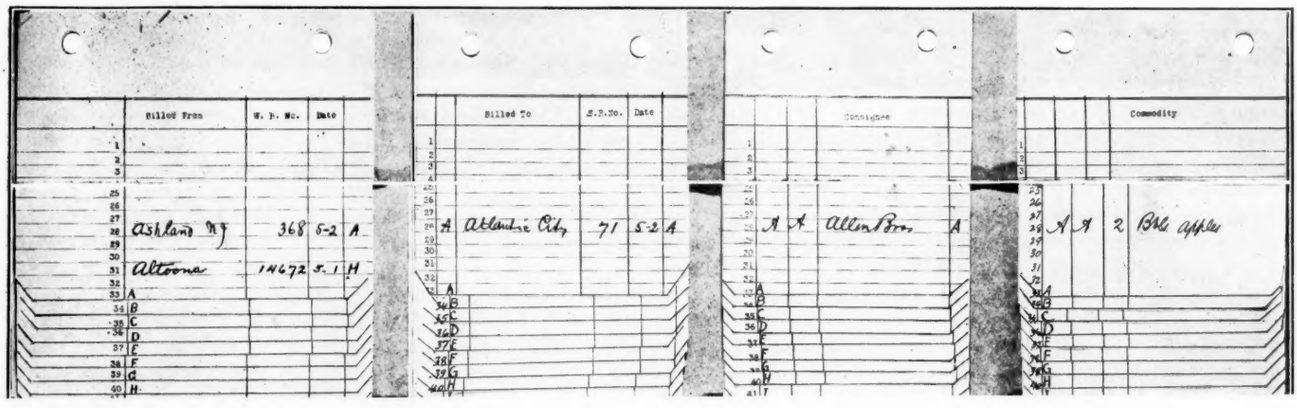
In the illustration the letters A, B, C, D, E, F, G, H represent each the lower end of a separate sheet; and a complete view would show separate sheets for the whole alphabet, A to Z.

The method of making the record may be illustrated by referring to line 28. Reading this line the interpretation is as follows: The shipment was billed from Ashland, N. J., on May 2; and the name of the place billed to, is indicated in the right hand

margin. This is to be found in the next index under A; referring to the next index, line 28, we find in the first column a letter A referring back to the word Ashland. (The date shown here is not the date on which the waybill arrived at destination or on which the short report was made; it is the date of the waybill. Throughout the records this earliest date is kept constantly prominent.) The letter A in the last column at the right indicates that the consignee's name is to be found in the index under that letter. Following the same rule we find in the third index that the commodity is to be found under A, and that leads us to the fourth index.

Going back now to the first index we find that in the item entered on line 31 the letter at the right is H. This indicates that the name of the station billed to will be found on sheet H, of the second index. The H sheet begins at line 40. The clerk always reads up. With his pencil, he turns up the lower left-hand corner of the sheet marked G, which discloses sheet H; and there, on line 31, he finds that this item was billed to Harrisburg. In the right-hand column of this index he finds the letter M; and by referring to sheet M in the third index, which ends at line 45 he reads on line 31 the name of the consignee, A. Morris. The whole of the index is made up in this way. If the sheet for a given letter is filled up while yet there is much room on the others, an additional sheet is inserted. A bunch of sheets lasts two or three days.

A similar set of indexes, with the heading slightly modified, is



Forms for Indexes to Freight Shortage Reports—Pennsylvania Railroad

kept for the over reports received. The first of the four indexes is to show the point of origin, so far as this can be ascertained, whether there is or is not a waybill to give light on this point. The second index shows the station with which the over report is connected, without regard to whether there is or is not any waybill reference. For a package without marks, or with marks which are not understood, the entry in the third index, instead of showing name of consignee, would be registered as "no marks."

The reports both for shorts and overs are made on very large blanks (8½ in. by 14 in.) with a view to having spaces large enough for writing in each item of information, so that as a rule the same kind of information can always be found in the same part of the sheet. On the short report, for example, there are ample spaces not only for facts obviously needed, but also for copies of all transfers, time stamps or other marks on the waybill; seals on all four doors, and answers to such questions as:

1. "Was car left at your station, or taken forward in same train?"
2. "How long was car at your station unsealed before shipment in question was checked?"
3. "Value of freight short."
4. "Has claim been entered." Give particulars. . . .

The report fills one-half the sheet, and the other half contains spaces for the answers to be made by the agent at the forwarding station. Among the questions which must be answered by him are: "For what other stations was freight loaded?" "For what stations was similar freight loaded?" "Have you received an over report from any other point covering this shipment?"

The instructions require this report to be made within two days after receipt of waybill, if all or a part of any shipment is short. Three copies are made, one for the agent at the point of shipment, one to go to the last transfer station at which shipment checked "O. K." and one to be retained. If the shortage has not been accounted for in seven days then a report is to be sent to the over and short bureau, including replies received, should there be any.

In making reports of overs property must be described as fully as possible. Castings and parts of machinery must be described in detail, so as to show, if possible, to what they belong. Packages must be described as old or new. An over report should bear notations of any articles reported short from the same car.

Freight known to belong at some other station is immediately forwarded, of course; but the report is made just the same.

An agent who receives freight which is known to belong at his station, but for which he has no waybill must make an over report within two days. He can of course, deliver the goods on presentation of original bill of lading or other proof of ownership, and payment of freight charges from point of shipment. Freight found over, which, because of absence of marks or other reasons, cannot be disposed of, must within ten days be sent to the unclaimed freight station, which is at Downington, Pa.

Mistakes in marking, or the sending of packages with no marks, or illegible marks, are the most numerous causes of freight going astray; and the searching of the records in most cases begins with the commodity index. For example Emlenton, Pa., reports short one barrel of flour for McGinnis. A search of the flour items on the over reports discloses a barrel, the record of which agrees in all particulars with the short report except the name of the consignee. The name of the shipper, the point of shipment and the date agree to such an extent that it appears to be an error of the shipper; and it is found that he marked one too many barrels for Krugg, Rahway, N. J., and one too few barrels for McGinnis. Frequently it will be found that two items will match in the name of consignee but not in destination, the shipper having made a mistake in marking the package. A mistake of this kind often passes undetected by freight-house men, though there is a plain discrepancy between the shipping receipt and the mark on the goods. Errors of this kind are quickly disclosed.

The original reports are filed under the name of the destination, or assumed destination of the goods, all for one name being put in a box together. For example, the Philadelphia box contains records not only of goods wanted at Philadelphia, Pa., but also any similar information concerning Philadelphia, N. Y., on the New York Central, or Philadelphia, Miss., on the New Orleans, Mobile & Ohio. Likewise—

"Springfield, O., and Springfield, Mo.,
And Springfields, Mass., and Ill."

are all in the same box.

NEW ENGLAND ROADS FILE CLAIMS FOR MAIL PAY LOSSES

Alleging that they have lost large sums through carrying the mails under the present system of weights and that their compensation at the present rate fixed per mile is unreasonable and confiscatory, seven New England roads, filed petitions, July 17, in the Court of Claims in Washington in an effort to obtain from the government the money which they contend they have lost in the last six years by reason of the postmaster general's alleged arbitrary mandates and the operation of the present system.

The roads filing these petitions and the sums they claim from the government are as follows:

New York, New Haven & Hartford	$4,524,714
Boston & Maine	3,676,824
Maine Central	1,839,740
Bangor & Aroostook	490,194
New York, Ontario & Western	305,000
Sandy River & Rangeley Lakes	30,968
Bridgeton & Saco River	13,425
Total	$10,880,865

This is an average annual loss of $1,813,478 for the last six years.

The petitions filed by these New England railroads claim:

First.—That the annual increase of mail has not been paid for at all.

Second.—The carrying of the parcel post has been without adequate compensation.

Third.—That the deficiency created by loss of mail compensation must be made up from the freight, passenger and express receipts.

Two causes of action are set up in the petitions filed, one with respect to the system of quadrennial weighing, declared to be illegal, and the other with respect to the rate of pay per mile and the increasingly expensive demands made from time to time by the postmaster general upon the railroads for facilities, for which no adequate compensation has been made.

With respect to the weighing of the mails every four years as a basis for the mail payments to them, the railroads assert that such weighing has been done exclusively by the postoffice department and that they have been prohibited from fully inspecting and verifying such weighing. This weighing of the mails for a certain period every four years as the basis for stating the average weight of the mail carried for the four years beginning a number of months after such weighing had been made, it is contended is not in accordance with the law.

The railroads charge that the postmaster general deliberately resorted to this system for the reason that the railroads would be compelled to carry the increasing amount of mail during the subsequent four-year period without any compensation. This is held to be illegal inasmuch as the annual compensation was by law fixed according to "the amount of mail carried per annum." The railroads assert that they repeatedly requested of the postmaster general that the mails be weighed annually or that the weights be taken at the beginning and end of the four-year period and averaged, but that such demands were ignored.

With regard to the effect of the parcel post the railroads point out that the increased mail resulting since the law went into effect on January 1, 1913, has not been included in any weights ascertained by the department and no compensation has been paid them for it upon any basis of weight. Furthermore, the raising of the weight limit of packages by the postmaster general on July 25 and December 18, 1913, has enormously increased the amount of this mail. The railroads ask in each case for the difference between the extra compensation granted them by the act of March 4, 1913 for this parcel post business and a sum which they fix as the reasonable compensation for the transportation of such mail.

Since the law was passed in 1873, fixing the rate of pay per mile, there have been several reductions, the last occurring in 1907. It is alleged, however, that even prior to these reductions the total compensation paid was insufficient to pay the cost of transportation furnished, the reductions merely increasing the deficiency.

At the same time, according to the petitions, the cost of labor, materials, depreciation charges, betterments, maintenance, taxes and operation have largely increased, notwithstanding which the demands of the postoffice department have from time to time been made more exacting, making necessary increased expenditures, and a far more costly service in the transportation of mails.

Regarding the acts of the postmaster general by which they allege that their burdens have been increased, the railroads say that not only has he made more exorbitant demands for a more extensive use of terminal facilities and switching conveniences, but "he has pretended to exercise an arbitrary, discriminating and unfounded discretion constantly against the legal rights and contract interests of the carriers; he has from time to time during the existence of outstanding quadrennial contracts made large additions thereto and increased requirements therein; he has refused to pay the statutory rates for carrying the mails during contract periods stated by him; he has at various times ordered apartment and railway postoffice cars of special construction, design and equipment, and entered into contracts for their use for definite periods, and then refused to pay the rates stated in the contracts, but offered lower and different rates which were unremunerative and confiscatory; he has made greater and more expensive demands as to rooms in stations for handling the mails; he has made many and extensive demands in the handling and the disposition of the mails at the several stations along the lines of railroad, and in the transportation of the mails between the stations and the postoffices not more than 80 rods therefrom; he has required the hauling of vast amounts of gold coin as mail of the fourth class in violation of law and without compensation to the carriers; he has required the carrying of mail on limited trains, and has burdened the service with onerous fines, forfeitures and increasing exactions."

Another charge made against the postmaster general is that "without any warrant or authority in law" he raised the weight limit of the parcel post packages by his executive orders of July 23, 1913, and December 18, 1913, the latter order bringing it up to 50 lb. in the first and second zones, "and thereby invited and permitted the shipping of vast quantities of merchandise, farm, mine and factory products, and materials of all kinds which theretofore had been shipped by freight or express, all without any adequate compensation therefor."

Suez Canal Traffic in 1914.—The net tonnage of vessels passing through the Suez canal in 1913 showed a decrease of 241,236 tons as compared with 1912. The reduction of the transit dues to 6.25 francs, or $1.206 per ton from January 1, 1913 together with the slight reduction of tonnage, had the effect of reducing the transit receipts to $24,443,630 in 1913, as compared with $26,329,800 in 1912. In the early months of 1914 traffic improved, showing an increase of 254,497 net tons for the first six months as compared with 1913, while the transit receipts increased $409,000. Traffic through the canal after the war began decreased considerably.

Railway Construction in Chile.—The president has been authorized to proceed with unfinished public works begun in 1914 and to use the income of the Arica-La Paz Railway up to $82,000. Among other expenditures will be the surveys for the Alamo-Molina Railway, Curico-Los Queñes Railway, and the branch railway from Arica to Zapiga. The president has also been authorized to contract at public tender for the construction of the railway that will unite Traiguen with the Central Railways, at a maxium cost of $600,000 United States currency, and to expend in the present year $150,000, which will be taken from the earnings of the Arica-La Paz Railway.

The Pennsylvania's 1915 Rail Specifications

The Specifications for 100 and 125-lb. Rail Are Based on Previous Experiments and Experimental Rollings

For the past two years the Pennsylvania Railroad has been engaged in the preparation of specifications for carbon steel rails and in the design of a new 125-lb. section. Various changes in these specifications have been tested as to their practicability by the rolling of small lots in several different mills. Based on previous experience and on the results of these experimental rollings the specifications given below have been prepared for 100-lb. rail. The specifications for the 125-lb. rail ordered this year differ from those for the 100-lb. rail in that they do not require the chemistry to be taken from the finished rail, omitting sections 6c, 6d and 6e. They differ from the specifications for the 125-lb. rail first prepared last year in that the carbon limits are established at 0.68 to 0.82 or 10 points below those previously set.

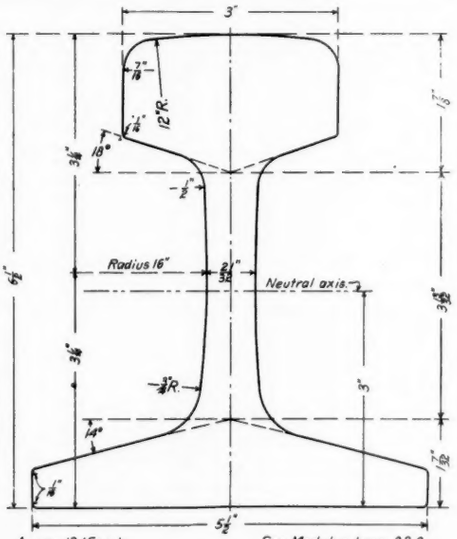
The 125-lb. section illustrated herewith is 6½ in. high with a 5½-in. base. The head is 3 in. wide with a top radius of 12 in. and vertical sides. Complete dimensions are shown in the sketch.

SPECIFICATIONS FOR 100-LB. CARBON STEEL RAILS

INSPECTION

1. *Access to Works.*—Inspectors representing the purchaser shall have free entry to the works of the manufacturer at all times while the contract is being executed, and shall have all reasonable facilities afforded them by the manufacturer to satisfy them that the rails have been made and loaded in accordance with the terms of the specifications.

2. *Place for Tests.*—All tests and inspections shall be made at the place of manufacture prior to shipment, and shall be so conducted as not to interfere unnecessarily with the operation of the mill.



The New Pennsylvania 125-lb. Rail Section

MATERIAL

3. *Material.*—The material shall be steel made by the Bessemer or open-hearth process, as provided by the contract.

CHEMICAL REQUIREMENTS

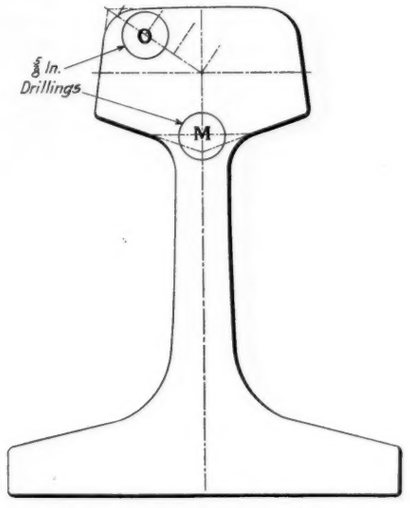
4. *Chemical Composition.*—The chemical composition of the rails rolled from each melt of steel, determined as described in Section 6, shall be within the limits shown in the following table:

Elements	Bessemer process Per cent	Open-hearth process Per cent
Carbon	0.45 to 0.10	0.60 to 0.75
Phosphorus	Not to exceed 0.55	Not to exceed 0.04
Manganese	0.80 to 1.10	0.60 to 0.90
Silicon	0.05 to 0.20	0.10 to 0.30

In the event of nickel and chromium being present to the extent of 1.0 per cent and 0.35 per cent, respectively, these elements will be considered as the equivalent of 0.07 per cent of carbon in the above requirements. When the analyses for carbon by the mill chemists and by the railroad chemists do not agree, a tolerance of two points below the minimum or two points above the maximum will be allowed to cover such variation before condemnation.

5. *Average Carbon.*—It is desired that the percentage of carbon in an entire order of rails shall average as high as the mean percentage between the upper and lower limits specified.

6. *Analyses.*—In order to ascertain whether the chemical composition is in accordance with the requirements, analyses shall be furnished as follows:



Section Showing Location of Borings

(*a*) For the Bessemer process, the manufacturer shall furnish to the inspector daily, the carbon determination for each melt before the rails are shipped, and two chemical analyses every 24 hr., representing the average of the elements, carbon, manganese, silicon, phosphorus and sulphur, contained in the steel, one for each day and night turn, respectively. The analyses shall be made on drillings taken from the ladle test ingot not less than ⅛ in. beneath the surface.

(*b*) For the open-hearth process, the makers shall furnish the inspectors with a chemical analysis of the elements, carbon, manganese, silicon, phosphorus and sulphur, for each melt.

(*c*) For the open-hearth process, a check analysis will be made by the purchaser of a piece of rail representing a melt, after the rails from that melt have passed the physical requirements. On request of the inspector, and in his presence, the manufacturer shall furnish from one of the drop-test pieces (Sec. 10) representing the melt, drillings satisfactory to the inspector, taken with a ⅝-in. flat drill, parallel to the axis of the rail, at a point one-third of the distance from the upper corner to the center of the head, as shown at location "O" in the accompanying section. The analysis from these drillings shall conform to the chemical requirements specified in Section 4, and failure to meet these re-

quirements shall be sufficient cause for the rejection of the entire melt.

(*d*) For the open-hearth process, after the rail has passed the physical requirements, additional drillings will be taken from the same rail, and in the same manner as specified in Section 6 (c), at the junction of the head and web, as shown in location "M," in the figure. The carbon determination from these drillings (Note 2, Sec. 4) shall be within 12 per cent of the amount found at location "O." If the test from the top rail fails to meet this requirement, all the top rails from the melt shall be rejected, and a similar determination shall be made from location "M" of a second rail (Note, Sec. 10). If this test fails all the second rails from the melt shall be rejected, and a similar determination shall be made from location "M" of a third rail. If this test fails, all the remaining rails from the melt shall be rejected.

(*e*) If, however, the segregation found at location "M" in any rail in a rolling exceeds 25 per cent, when determined as provided for in Section 6 (d), the progressive testing of the second and third rails will not be permitted on any subsequent melts; but on such melts the failure of the top rail to pass the requirements provided for in 6 (d) will cause the rejection of the entire heat.

PHYSICAL REQUIREMENTS

7. *Physical Qualities.*—Tests shall be made to determine:

(*a*) Ductility or toughness as opposed to brittleness.

(*b*) Soundness.

8. *Method of Testing.*—The physical qualities shall be determined by the drop test.

9. *Drop Testing Machine.*—The drop testing machine used shall be the standard of the American Railway Engineering Association.

(*a*) The tup shall weigh 2,000 lb., and have a striking face with a radius of 5 in.

(*b*) The anvil block shall weigh 20,000 lb., and be supported on springs.

(*c*) The supports for the test pieces shall be spaced 3 ft. between centers, and shall be a part of, and firmly secured to, the anvil. The bearing surfaces of the supports shall have a radius of 5 in.

10. *Pieces for Drop Test.*—Drop tests shall be made on pieces of rail not less than 4 ft. and not more than 6 ft. long. These test pieces shall be cut from the top end of the drop rail of the ingot, and marked on the base with gage marks 1 in. apart for 3 in. each side of the center of the test piece, for measuring the ductility of the metal.

NOTE.—Where it is necessary to test rails lower than the first rail, the bottom of the first rail, in lieu of the top of the second rail; and the bottom of the second rail, in lieu of the top of the third rail, will be accepted, if preferred by the manufacturer.

11. *Temperature of Test Pieces.*—The temperature of the test pieces shall be between 60 and 120 deg. F.

12. *Height of Drop.*—The test piece shall be placed head upwards on the supports, and be subjected to impact of the tup falling free from a height of 18 ft.

13. *Elongation or Ductility.*—(*a*) Under this impact the rail under one or more blows shall show at least 6 per cent elongation for 1 in. or 5 per cent each for two consecutive inches of the 6-in. scale, marked as described in Section 10.

(*b*) A sufficient number of blows shall be given to determine the complete elongation of the test piece of at least every fifth melt of Bessemer steel, and of one out of every three test pieces of a melt of open-hearth steel.

14. *Permanent Set.*—The permanent set for No. 1 classification rails, measured by the middle ordinate in inches in a length of 3 ft., after one blow under the drop test, shall not exceed that in the following table:

	Rail		Permanent set in inches	
Section	Weight per yard	Moment of inertia	Bessemer process	Open-hearth process
P. S.	100	41.9	2.00	2.00

15. *Test to Destruction.*—The test pieces which do not break under the first or subsequent blows shall be nicked and broken, to determine whether the interior metal is sound.

(The words "interior defect" in the following sections shall be interpreted to mean: seams, laminations, cavities or interposed foreign matter made visible by the destruction test, the saws, or the drills.)

16. *Bessemer Process Drop Tests.*—One piece shall be tested from each melt of Bessemer steel.

(*a*) If the test piece does not break at the first blow and gives the required elongation (Sec. 13), all of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test piece, when broken, does not show interior defect.

(*b*) If the test piece breaks at the first blow, or does not give the required elongation (Sec. 13), or if the test piece does not break and gives the required elongation, but, when broken, shows interior defect, all of the top rails from that melt shall be rejected.

(*c*) A second test shall then be made of a test piece selected by the inspector from the top end of any second rail of the same melt, preferably of the same ingot (Note, Sec. 10). If the test piece does not break at the first blow and gives the required elongation (Sec. 13), all of the remainder of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test piece, when broken, does not show interior defect.

(*d*) If the test piece breaks at the first blow, or does not give the required elongation (Sec. 13), or if the test piece does not break and gives the required elongation, but, when broken, shows interior defect, all of the second rails from that melt shall be rejected.

(*e*) A third test shall then be made of a test piece selected by the inspector from the top end of any third rail of the same melt, preferably of the same ingot. If the test piece does not break at the first blow and gives the required elongation (Sec. 13), all of the remainder of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test piece, when broken, does not show interior defect.

(*f*) If the test piece breaks at the first blow, or does not give the required elongation (Sec. 13), or if the test piece does not break and gives the required elongation, but, when broken, shows interior defect, all of the remainder of the rails from that melt shall be rejected.

17. *Open-Hearth Process Drop Tests.*—Test pieces shall be selected from the second, middle and last full ingot of each open-hearth melt, and all three pieces shall undergo the complete set of physical tests.

(*a*) If none of the test pieces break at the first blow and give the required elongation (Sec. 13), all of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test pieces, when broken, do not show interior defect.

(*b*) If any of the test pieces break at the first blow, or do not give the required elongation (Sec. 13), or if none of the test pieces break and give the required elongation, but, when broken, show interior defect, all of the top rails from that melt shall be rejected.

(*c*) Second tests shall then be made from three test pieces selected by the inspector from the top ends of any second rails of the same melt, preferably the same ingots (Note, Sec. 10). If none of the test pieces break at the first blow and give the required elongation (Sec. 13), all of the remainder of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test pieces, when broken, do not show interior defect.

(*d*) If any of the test pieces break at the first blow, or do not give the required elongation (Sec. 13), or if none of the test

pieces break and give the required elongation, but, when broken, show interior defect, all of the second rails of the melt shall be rejected.

(*e*) Third tests shall then be made from three test pieces selected by the inspector from the top ends of any third rails of the same melt, preferably of the same ingots (Note, Sec. 10). If none of the test pieces break at the first blow and give the required elongation (Sec. 13), all of the remainder of the rails of the melt shall be accepted as No. 1 or No. 2 classification, according as the permanent set is less or more, respectively, than the prescribed limit, provided that the test pieces, when broken, do not show interior defect.

(*f*) If any of the test pieces break at the first blow, or do not give the required elongation (Sec. 13), or if none of the test pieces break and give the required elongation, but, when broken, show interior defect, all of the remainder of the rails from that melt shall be rejected.

18. *No. 1 Rails.*—No. 1 classification rails shall be free from injurious defects and flaws of all kinds.

19. *No. 2 Rails.*—(*a*) Rails which, by reason of surface imperfections, or for causes mentioned in Sections 16, 17 and 29, are not classed as No. 1 rails, will be accepted as No. 2 rails, but No. 2 rails which contain imperfections in such number or of such character as will, in the judgment of the inspector, render them unfit for recognized No. 2 uses, will not be accepted for shipment.

(*b*) No. 2 rails to the extent of 5 per cent of the whole order will be received. All rails accepted as No. 2 rails shall have the ends painted white and shall have two prick punch marks on the side of the web near the heat number near the end of the rail, so placed as not to be covered by the splice bars.

DETAILS OF MANUFACTURE

20. *Quality of Manufacture.*—The entire process of manufacture shall be in accordance with the best current state of the art. Ingots shall be kept in a vertical position until ready to be rolled, or until the metal in the interior has had time to solidify.

21. *Bled Ingots.*—Bled ingots shall not be used.

22. *Discard.*—There shall be sheared from the end of the bloom formed from the top of the ingot sufficient metal to secure sound rails.

23. *Lengths.*—The standard length of rails shall be 33 ft., at a temperature of 60 deg. F. Ten per cent of the entire order will be accepted in shorter lengths varying by 1 ft. from 32 to 25 ft. A variation of ¼ in. from the specified lengths will be allowed, except that for 15 per cent of the order this variation may be ⅜ in. No. 1 rails less than 33 ft. long shall be painted green on both ends.

24. *Shrinkage.*—The number of passes and speed of train shall be so regulated that on leaving the rolls at the final pass the temperature of the rail will not exceed that which requires a shrinkage allowance at the hot saws, for a rail 33 ft. in length, of 6¾ in.

25. *Cooling.*—The bars shall not be held for the purpose of reducing their temperature, nor shall any artificial means of cooling them be used after they leave the finishing pass. Rails, while on the cooling beds, shall be protected from snow and water.

26. *Section.*—The section of rails shall conform as accurately as possible to the template furnished by the railroad company. A variation in height of 1/64 in. less or 1/32 in. greater than the specified height, and 1/16 in. in width of flange, will be permitted; but no variation shall be allowed in the dimensions affecting the fit of the splice bars.

27. *Weight.*—The weight of the rails specified in the order shall be maintained as nearly as possible, after complying with the preceding section. A variation of ½ of 1 per cent from the calculated weight of section, as applied to an entire order, will be allowed.

28. *Payment.*—Rails accepted will be paid for according to actual weights.

29. *Straightening.*—(*a*) The hot straightening shall be carefully done, so that gagging under the cold presses will be reduced to a minimum. Any rail coming to the straightening presses showing sharp kinks or greater camber than that indicated by a middle ordinate of 4 in. in 33 ft., will be at once classed as No. 2 rail. The distance between the supports of rails in the straightening presses shall not be less than 42 in. The supports shall have flat surfaces and be out of wind.

(*b*) Rails heard to snap while being straightened shall be at once rejected.

30. *Drilling.*—Circular holes for joint bolts shall be drilled to conform accurately in every respect to the drawing and dimensions furnished by the railroad company.

31. *Finishing.*—(*a*) All rails shall be smooth on the heads, straight in line and surface, and without any twists, waves or kinks. They shall be sawed square at the ends, a variation of not more than 1/32 in. being allowed, and burrs shall be carefully removed.

(*b*) Rails improperly drilled or straightened, or from which the burrs have not been removed, shall be rejected, but may be accepted after being properly finished.

(*c*) When any finished rail shows interior defects at either end or in a drilled hole the entire rail shall be rejected.

32. *Branding.*—Rails shall be branded for identification in the following manner:

(*a*) The name of the manufacturer, the month and year of manufacture, and the weight and types or section of rail shall be rolled in raised letters and figures on the side of the web. The type shall be marked by letters which signify the name by which it is known as for example:

Sections of Pennsylvania Railroad System	P. S.
Sections of American Society of Civil Engineers	A. S. C. E.
Sections of American Railway Association	R. A.—A.
	R. A.—B.
Sections of American Railway Engineering Association	R. E.

(*b*) The number of the heat and letter indicating the portion of the ingot from which the rail was made shall be plainly stamped on the web of each rail where it will not be covered by the joint bars. The top rails shall be lettered "A" and the succeeding ones "B," "C," "D," etc., consecutively; but in case of a top discard of from 20 to 35 per cent the letter "A" will be omitted, the top rail becoming "B." If the top discard be greater than 35 per cent the letter "B" shall be omitted, the top rail becoming "C."

(*c*) Open-hearth rails shall be branded or stamped "O.-H." in addition to the other marks.

(*d*) All markings of rails shall be done so effectively that the marks may be read as long as the rails are in service.

33. *Separate Classes.*—All classes of rails shall be kept separate from each other.

34. *Loading.*—Rails shall be carefully handled and loaded in such a manner as not to injure them.

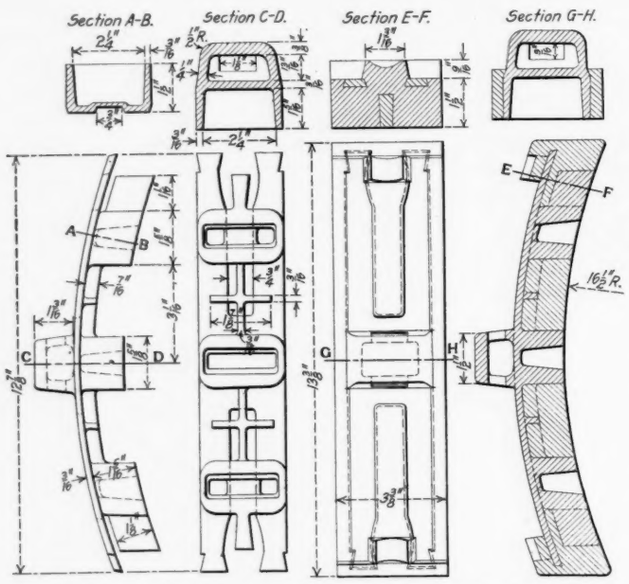
LONDON TUBE SERVICE EXTENSIONS.—The utility of the new Queen's Park extension of the Bakerloo tube will soon be increased further by the running of through trains to the new London & North Western station at Willesden Junction. Work is also proceeding on the Central London extension which will link up that railway with the Great Western main line at Ealing Broadway. The tube railway, as originally conceived, was to have been a self-contained undertaking, with no connection with other lines. The tubes were deep-level lines and tunnels of too small diameter to admit modern main-line rolling stock with the exception of the Great Northern & City, which has never been used for such rolling stock. The new era of through bookings and other facilities for encouraging interchange traffic has since caused the old policy of isolation to be abandoned and there now is through running on surface lines. This innovation is of value to all concerned, but it raises the question whether the tunnels would have been built to their narrow diameter if future developments could have been foreseen. Standard main-line rolling stock cannot be used for these new through services, and it is possible that that may militate against other extensions of through service. The difficulties can be overcome by changing at suitable junction points, but experience gained during the past few years has shown plainly the cash value of through facilities.

BRAKE SHOE WITH MALLEABLE IRON INSERTS

A recently developed car wheel brake shoe which is claimed to have given excellent results both in service and laboratory tests is shown herewith. It is of the insert type and details of its construction will be readily understood by referring to the drawing.

The body of the shoe is a special cast iron mixture poured around three inserts of malleable iron which form an integral part of the back and lug of the shoe. The inserts are rectangular in section and in the center of each is a dust pocket, the opening of which in the face of the shoe is ¾ in. wide by 2¼ in. long. The back of the shoe, which is reinforced with stiffening ribs, is so formed that it is well secured in the cast iron body.

A laboratory test of one of these shoes was recently made at Purdue University. When tested on a cast iron wheel at a pressure of 2,808 lb., it developed a coefficient of friction of 28.01 per cent. When the pressure was increased to 6,840 lb., the coefficient was 20.37 per cent. The coefficient at these pressures required by the Master Car Builders' specifications are respectively 22 per cent and 16 per cent. A similar test on a steel wheel developed coefficients of 15.92 per cent at a brake shoe pressure of 6,840 lb., and 11.96 per cent at 12,000 lb., the minimum Master Car Builders' coefficients for these conditions being 12.5 per cent and 11 per cent respectively. On the steel wheel the loss in weight for each 100,000,000 ft.-lb. of work done was 1.04 lb., the specifications permitting a maximum of



Details of Brake Shoe with Dust Pockets in the Inserts

four pounds under these conditions. The average distance of stop from 65 miles an hour on the steel wheel was 890 ft. under 12,000 lb. brake shoe pressure; under 6,840 lb. pressure the average stop was made in 1,348 ft. On the cast iron wheel the average distance of stop in the low pressure test was 881 ft., while in the high pressure test it was only 440 ft.

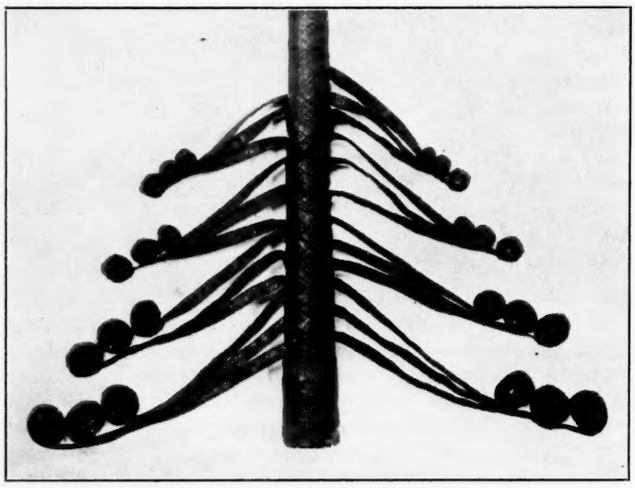
This shoe is known as the Streeter safety brake shoe and the special features of its construction have been patented. Its further development is in the hands of A. Mitchell, Bedford building, Chicago.

RUSSIAN RAILWAY TO THE ARCTIC OCEAN.—The Council of Ministers at Petrograd has sanctioned an expenditure of $8,500,000 for the construction of a railway line from Kandalakscha, in the Government of Archangel, to Kola, in the same government, which will run across the Kola peninsula and connect the Arctic ocean with the Russian railway system.

AIR BRAKE HOSE

A method of rubber hose construction has been developed by the Goodyear Tire & Rubber Company, Akron, Ohio, which permits the manufacture of a hose of uniform thickness throughout in which the tendency to twist or contract under pressure has been entirely eliminated. It is known as the Subers process, and is now being used in the manufacture of standard M. C. B. air brake hose.

In the making of what is termed wrapped hose, the fabric is cut on the bias, overlapped and wrapped directly over the tube. The lap of the fabric in hose of this type varies the thickness often as much as 1/32 in., and when cut through, a section of the material clearly shows that the fabric is not thoroughly impregnated with the rubber. The wrapping material under the Subers process consists of parallel strands or cords combined into strips, each strip consisting of about 288 strands and being approximately 1/16 in. thick by ½ in. wide. Every strand is separately coated with rubber compound which binds the strands in each strip firmly together, the impregnation of



Method of Wrapping the Tube or Lining in the Subers Process

the fabric being thus very complete. The strips are wound spirally about the tube or lining of the hose, there being two complete layers in each direction. The strips in each layer are separated by a space equal to their own width and there is no overlapping. The manner in which the strips are applied may be clearly understood by referring to the accompanying illustration.

Hose of this construction shows a specially high bursting pressure and the distorting effect of the pressure is minimized. The elongation per foot per 1,000 lb. pressure will average about ⅛ in., with an expansion of about 1/16 in. on the diameter, there being no twisting or contracting. Until a pressure of 1,300 lb. has been reached, however, but little change takes place.

At the present time the manufacturers are confining their production of this type of hose to the standard air brake hose in lengths of 22 in., but later expect to adapt the process to the manufacture of car heating steam hose, pneumatic tool hose, etc. The air brake hose now being manufactured conform to the Master Car Builders' specifications presented at the last convention of the association. They are being used at the present time by several railroads.

REGISTRATION OF TRADE-MARKS IN LATIN AMERICA.—The Bureau of Foreign and Domestic Commerce of the Department of Commerce has recently issued a preliminary report on this subject giving data relative to the offices for registration of trade-marks; duration; fees, and formalities of registration in the countries of South and Central America.

General News Department

The safety first and the freight claim preventive committees on the St. Louis & San Francisco were consolidated, effective July 1.

The city council of Cleveland has appointed a committee to investigate the subject of electrification of steam railroads. The committee will have before it for consideration a report on the subject presented in 1913 by E. T. Roberts, then city smoke inspector.

The special recess committee appointed to study the development of terminal facilities in Boston, Mass., has elected Edward J. Dunn secretary, and has set July 29 for the first public hearing, to which Boston civic organizations, street railway officers and steam railroad officers are invited.

The Colorado Eastern Railroad, which has been operating one train a day between Colorado and Scranton, Col., a distance of about 20 miles, in order to hold a franchise, has suspended operation in consequence of a decision of the Colorado supreme court, declaring that the franchise to use the city streets was invalid.

United States civil service examinations will be held on August 17 and 18 respectively for senior land appraisers and junior land appraisers for men desiring to qualify for these positions on the Interstate Commerce Commission's valuation corps. The senior land appraiser positions pay from $1,800 to $3,600, and the junior from $900 to $1,500.

The Georgia state senate, by a vote of 38 to 2, passed a bill to amend the constitution so as to prohibit any privately owned railroad from paralleling the tracks of the Western & Atlantic so long as it remains the property of the state. The bill now goes to the House. The Western & Atlantic is now leased by the state to the Nashville, Chattanooga & St. Louis, and this lease expires in December, 1919.

Bulletin No. 8 of the Pennsylvania Lines is a warning against trespassing. These bulletins are issued from time to time by the Pennsylvania "to inform its patrons as to facts and problems of importance to the railroad and the public." No. 8 is headed with red letters an inch high, "The Most Needless Waste of Human Life in America," and winds up with red letters half an inch deep, "Don't *you* trespass." The circular points out that it is a fact that more people are killed every year trespassing on railroad tracks in the United States than the total number who lost their lives in the Johnstown flood, San Francisco earthquake and fire, the Salem, Baltimore and Jacksonville fires, and the sinking of the Titanic and Lusitania.

Operating Revenues and Expenses of Express Companies for March, 1915

The following statement, which is subject to revision, has been compiled by the Interstate Commerce Commission from the monthly reports of operating revenues and expenses of the principal express companies for March, 1915.

A—For the Month of March

Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.		Great Northern Express Co.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
Mileage of all lines covered (miles).	44,846.63	38,545.94	72,499.10	60,187.33	9,676.50	7,080.31	2,839.78	2,839.78	9,557.73	9,334.20
Charges for transportation.....	$2,924,366	$2,545,088	$3,939,222	$3,181,573	$229,604	$240,227	$53,607	$43,285	$221,149	$224,939
Express privileges—Dr.	1,391,890	1,310,410	1,984,410	1,581,840	111,984	112,426	26,739	22,472	134,068	136,496
Operations other than transportation	39,960	26,825	190,879	175,086	4,744	7,034	752	817	3,724	3,727
Total operating revenues	1,572,437	1,261,502	2,145,690	1,774,819	122,364	134,835	27,619	21,630	90,805	92,170
Operating expenses	1,446,855	1,361,127	1,938,624	1,870,649	120,968	127,648	28,096	28,450	80,370	84,115
Net operating revenue.....	125,581	—99,624	207,066	—95,729	1,395	7,186	—477	—6,820	10,435	8,055
Uncollectible revenue from transp'n.	501	.....	261	.....	27	.....	.....	.....	9	.....
Express taxes	16,495	16,704	21,604	32,756	4,000	3,000	800	800	2,868	2,826
Operating income	108,584	—116,329	185,201	—128,486	—2,631	4,186	—1,277	—7,620	7,558	5,228

Item	Northern Express Co.		Southern Express Co.		Wells Fargo & Co.		Western Express Co.		Total for all companies named*	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
Mileage of all lines covered (miles).	8,115.34	8,080.40	34,639.60	33,510.60	113,150.05	99;869.25	5,174.26	5,008.97	300,501.99	296,517.08
Charges for transportation.....	$202,703	$204,316	$1,318,466	$1,289,459	$3,324,897	$2,532,170	$91,789	$86,543	$12,305,806	$11,831,144
Express privileges—Dr.	111,486	112,673	687,834	669,278	1,688,896	1,240,256	43,421	44,078	6,180,733	5,958,950
Operations other than transportation	3,251	2,940	25,972	27,171	58,518	54,289	3,044	2,259	330,849	325,227
Total operating revenues.....	94,468	94,583	656,604	647,352	1,694,518	1,346,204	51,412	44,724	6,455,922	6,197,421
Operating expenses	63,592	83,693	525,902	572,258	1,419,039	1,209,434	49,551	48,197	5,693,002	6,202,010
Net operating revenue	10,875	10,990	130,702	75,094	275,479	136,769	1,860	—3,472	762,920	—4,619
Uncollectible revenue from transp'n.	24	5	73	33	974	.....	25	.....	1,897	38
Express taxes	5,000	4,500	14,205	15,423	31,095	35,000	948	1,102	97,018	124,280
Operating income	5,850	6,485	116,423	59,637	243,409	101,769	886	—4,574	664,005	—128,937

B—For the Nine Months Ending with March

Item	Adams Express Co.		American Express Co.		Canadian Express Co.		Globe Express Co.		Great Northern Express Co.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
Charges for transportation.....	$25,371,028	$25,211,666	$34,105,037	$31,117,996	$2,308,758	$2,387,761	$538,349	$510,835	$2,333,558	$2,452,501
Express privileges—Dr.	12,829,016	13,247,347	17,132,291	15,601,413	1,166,733	1,140,209	270,068	257,326	1,424,420	1,501,732
Operations other than transportation	368,063	271,099	1,626,728	1,634,921	44,434	80,577	7,188	7,453	38,645	37,497
Total operating revenues	12,910,075	12,235,418	18,599,474	17,151,504	1,186,460	1,328,130	275,469	260,961	947,783	988,266
Operating expenses	13,646,466	12,652,045	18,533,553	17,480,574	1,161,840	1,270,005	263,045	271,952	799,250	809,034
Net operating revenue	—736,391	—416,626	65,920	—329,070	24,619	58,125	12,423	—10,991	148,533	179,232
Uncollectible revenue from transp'n.	4,451	.....	1,752	158	77	.....	.....	.....	54	.....
Express taxes	152,489	151,138	297,414	278,828	36,000	25,700	9,000	10,000	34,880	34,961
Operating income	—893,331	—567,765	—233,247	—608,057	—11,457	32,425	3,423	—20,991	113,598	144,270

Item	Northern Express Co.		Southern Express Co.		Wells Fargo & Co.		Western Express Co.		Total for all companies named*	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
Charges for transportation.....	$2,050,713	$2,263,000	$10,449,711	$11,794,675	$28,149,462	$23,595,037	$856,479	$902,933	$106,163,091	$115,150,798
Express privileges—Dr.	1,120,010	1,229,666	5,379,818	6,053,970	14,404,065	11,808,009	450,804	501,947	54,177,230	58,671,345
Operations other than transportation	29,261	28,980	226,845	249,361	526,452	490,379	27,607	21,216	2,895,228	3,054,245
Total operating revenues.....	959,964	1,062,315	5,296,738	5,990,066	14,271,839	12,277,407	433,283	422,203	54,881,089	59,533,698
Operating expenses	797,622	822,072	4,748,111	5,214,027	13,344,338	11,143,467	469,158	448,453	63,763,387	57,984,670
Net operating revenue.....	162,342	240,242	548,627	776,039	927,500	1,133,939	—35,875	—26,250	1,117,702	1,549,028
Uncollectible revenue from transp'n.	132	36	443	126	7.934	.....	77	.....	14,924	320
Express taxes	45,000	40.500	131,755	135,635	319,453	298,000	9.080	7,474	1,035,074	1,080,244
Operating income	117,210	199,706	416,429	640,278	600,112	835,939	—45,034	—33,724	67,704	468,464

*Includes previous year's returns of United States Express Co.

Southern Railway's Accident Record

More than 16,500 passengers were carried on the Southern Railway in the year ended June 30 with not a single passenger killed in a train accident and only one fatal injury to a passenger while on a train. This injury occurred to the passenger while standing on a car platform. In making this announcement the company calls attention to the fact that during this year 12 persons were killed at public highway crossings on the Southern in automobile accidents, every one of which could have been prevented by the exercise of caution on the part of the driver of the automobile.

Tool Foremen's Convention

The seventh annual convention of the American Railway Tool Foremen's Association was held at the Hotel Sherman, Chicago, July 19 to 21, Henry Otto, tool foreman, Atchison, Topeka & Santa Fe, presiding. The opening address was presented by R. W. Bell, general superintendent of motive power, Illinois Central, and a paper was read on "Getting the Most Out of Tools," by B. W. Benedict, director of shop laboratories, University of Illinois. A report of the convention will be included in next week's issue of the *Railway Age Gazette*.

The following is the list of exhibitors:

Abrasive Material Company, Chicago.—New electric abrasive—"boro-carbone." Represented by J. C. Dillenbeck.

Armstrong Brothers Tool Company, Chicago.—Lathe and planer tool holders, drop forged wrenches, lathe dogs, drills and clamps. Represented by Geo. E. Armstrong and Paul Armstrong.

Besly, Chas. H., & Co., Chicago.—Helmet temper taps. Represented by C. A. Mills.

Brown Instrument Company, Philadelphia, Pa.—Pyrometers. Represented by J. W. Lazear and F. C. Mahoney.

Brown, Tom, & Co., Chicago.—Flue expanders; beading tools and journal jacks. Represented by Tom Brown.

Browne & Sharpe Manufacturing Company, Providence, R. I.—Machinists' tools and cutters. Represented by H. M. Geis and R. E. Doras.

Carborundum Company, Niagara Falls, N. Y.—Carborundum crystals and wheels. Represented by C. C. Schumaker, E. P. Ritzma and H. P. Frost.

Celfor Tool Company, Buchanan, Mich.—Twist drills, reamers, countersinks and miscellaneous tools. Represented by W. Nochmuson and C. O. Montague.

Chicago Pneumatic Tool Company, Chicago.—Pneumatic tools.

Cleveland Pneumatic Tool Company, Cleveland, Ohio.—Riveters, clippers, drills and hose couplings. Represented by C. J. Albert.

Cleveland Twist Drill Company, Cleveland, Ohio.—Drills and reamers. Represented by A. L. Beardsley and H. S. White.

Colonial Steel Company, Pittsburgh, Pa.—Specimens of tool steel. Represented by Mallory P. Spencer.

Desmond-Stephen Manufacturing Company, Urbana, Ohio.—Grinding wheel dressers. Represented by H. H. Dovell.

Detroit Twist Drill Company, Detroit, Mich.—Twist drills, reamers and cutters. Represented by M. F. Crawmer.

Duff Manufacturing Company, Pittsburgh, Pa.—Genuine Barrett jacks, Duff ball bearing and high speed screw and journal jacks. Represented by C. N. Thulin.

Edgar-Allen & Co., Chicago.—Specimens of steel

Faessler, J., Manufacturing Company, Moberly, Mo.—Flue expanders, cutters, etc. Represented by G. R. Maupin.

Greenfield Tap & Die Corporation, Greenfield, Mass.—Taps, Wells self-opening dies, gages and reamers. Represented by J. K. Simons and Martin Sweder.

Hardy, F. A., & Co., Chicago.—Safety welding and grinding glasses; new Hardy noviweld glass. Represented by C. S. Wells.

Horne, Dale Brown Company, Chicago.—Satco safety drill holders and ratchets; Cleveland crucible steel files; L. W. drills and reamers; Victor hack saw blades. Represented by J. J. Dale, J. W. Horne and P. V. Bachelle.

Hyland, R. H., & Co., Chicago.—Norton self-lowering ball bearing jacks, journal jacks, Mulcomoy flexible metallic air and steam twin acetylene hose. Represented by R. H. Hyland.

Independent Pneumatic Tool Company, Chicago.—Pneumatic and electric tools; pneumatic roller bearing drills and new chipping hammers. Represented by H. F. Finney, H. H. Henricks, V. W. Robinson, G. C. Wilson and F. J. Passino.

Ingersoll-Rand Company, New York.—Pneumatic tools.

Norton Company, Worcester, Mass.—Norton grinding wheels, India oilstones and grinding machinery. Represented by George W. Thomson, W. N. Jore and Wm. H. Warner.

Nye Tool & Machine Works, Chicago.—Nye cutter wheel, dies, combination stocks, post vise and receding stock. Represented by H. G. Nye and Chas. Wildridge.

Racine Tool & Machine Company, Racine, Wis.—High speed hack saw. Represented by J. M. Jones and Edward Genten.

Rich Tool Company, Chicago.—High speed tools, reamers, rivet sets and tungsten valves. Represented by O. F. Schubert.

Ryerson, Jos. T., & Son, Chicago.—Exhibiting booklets on special machinery and special nikrome and tool steels. Represented by A. H. Ackerman and John Ponic.

Street R. R., & Co., Chicago.—Billings & Spencer tools; Horton chucks; Yale chain blocks; Jackson drill press vise; Hyatt roller bearings; and Keystone steel pulleys. Represented by A. H. Taylor, Chas. Butterfuss and Lane Schofield.

Whitman & Barnes Manufacturing Company, Akron, Ohio.—Exhibiting drills, reamers and wrenches. Represented by M. E. Towner and A. O. Wange.

Willson, T. A., & Co., Reading, Pa.—Safety glasses and grinders' glasses. Represented by B. T. Roberts.

MEETINGS AND CONVENTIONS

The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, July 21, 1915, Milwaukee, Wis.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Next meeting, August 19-20, 1915, San Francisco, Cal.

AMERICAN RAILROAD MASTER TINNERS, COPPERSMITHS AND PIPEFITTERS' ASSOCIATION.—W. E. Jones, C. & N. W., 3814 Fulton St., Chicago. Annual meeting, July 13-16, 1915, Hotel Sherman, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—Owen D. Kinsey, Illinois Central, Chicago. Annual meeting, July 19-21, 1915, Hotel Sherman, Chicago.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday of each month, Pittsburgh.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Annual meeting, August 17, 1915, Philadelphia, Pa.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn. Next convention, July 13-16, 1915, Sherman House, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next convention, September 14-16, 1915, Detroit, Mich.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Annual meeting, September 14-17, 1915, Salt Lake City, Utah.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Annual meeting, September 14-16, 1915, Chicago.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—Carl Nyquist, C. R. I. & P., 1134 La Salle St. Sta., Chicago. Annual meeting, September, 1915.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, 559 Broad St., Newark.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Genl. Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings bi-monthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings last Tuesday in month, except June, July and August, Hotel Astor, New York.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., East Buffalo, N. Y. Annual meeting, September 7-10, 1915, Chicago.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY, 1915

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses							Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Atlantic City	170	$66,215	$121,143	$194,558	$52,452	$23,754	$1,998	$81,951	$103	$3,334	$163,530	$31,029	$13,500	$17,524	—$36,875
Birmingham Southern	44	39,956	713	58,324	10,538	11,080	688	19,672	.....	3,229	45,207	13,116	2,093	11,023	—13,755
Boston & Maine	2,302	2,338,308	1,173,783	3,874,708	707,668	508,402	33,357	1,597,515	17,006	92,785	2,956,733	917,975	163,006	754,968	106,947
Central Vermont	411	235,045	63,600	325,664	42,217	45,658	9,719	133,453	65	8,165	239,277	86,388	15,760	70,623	14,020
Chicago & Eastern Illinois	1,282	707,842	208,801	1,012,041	317,512	308,742	24,304	402,531	7,026	36,379	1,093,205	—81,164	53,600	—135,031	—239,537
Colorado & Southern	1,089	413,498	103,975	560,032	91,587	140,692	10,519	184,453	3,298	22,143	452,693	107,339	35,000	72,338	—8,562
Denver & Rio Grande	2,585	1,212,120	380,570	1,734,189	205,059	260,244	45,150	468,897	34,622	46,708	1,060,680	673,509	80,600	592,834	92,550
Denver & Salt Lake	255	97,610	23,058	126,626	16,676	20,184	2,471	39,399	.....	4,832	83,340	43,285	7,500	35,785	15,942
Detroit, Toledo & Ironton	441	101,139	9,819	119,692	11,926	16,791	3,233	59,396	.....	5,909	97,255	22,437	2,000	20,437	170,950
Duluth, South Shore & Atlantic	626	162,614	63,349	250,556	70,557	37,217	5,931	95,210	3,563	9,071	221,548	29,008	16,000	13,008	17,747
Duluth, Winnipeg & Pacific	185	67,489	12,753	82,627	13,314	9,648	1,518	27,769	585	6,150	58,984	23,642	4,131	19,511	17,056
†Cripple Creek & Colorado Springs	87	87,397	16,473	105,568	13,658	10,850	2,910	27,711	.....	4,374	59,503	46,065	5,790	40,275	.....
Galveston, Harrisburg & San Antonio	1,350	545,610	217,100	828,494	144,021	158,475	30,662	376,024	9,926	33,734	752,643	75,851	39,624	36,009	32,136
Georgia, Southern & Florida	395	95,013	43,311	165,358	20,219	26,355	7,054	72,498	1,773	9,529	137,429	27,929	10,132	17,637	—5,837
Gulf, Colorado & Santa Fe	1,937	846,299	212,851	1,132,338	245,141	191,564	29,998	450,574	.....	45,564	962,748	169,590	45,043	124,432	54,141
Houston East & West Texas	191	81,809	25,121	115,669	18,030	16,692	1,903	39,382	449	2,987	79,438	36,231	4,170	32,042	4,866
Houston & Texas Central	894	343,901	115,094	501,797	99,597	69,883	15,451	214,914	3,910	17,430	420,371	81,426	26,951	54,359	97,708
Kansas City, Mexico & Orient	740	145,339	25,244	180,252	54,687	36,826	8,407	88,571	.....	10,392	198,883	—18,630	9,125	—27,768	.....
Louisiana Western	208	108,982	52,793	174,691	27,269	30,708	7,516	57,040	1,618	6,641	130,791	43,900	9,895	33,768	—3,485
Missouri, Kansas & Texas System	3,865	1,503,718	605,277	2,287,570	328,397	339,791	52,213	903,062	20,846	89,694	1,694,310	593,259	111,794	468,874	—54,306
Missouri, Oklahoma & Gulf of Texas	19	8,274	251	8,684	2,477	12,745	261	5,072	.....	544	21,099	—12,414	140	—12,554	—12,193
Missouri Pacific	3,920	1,660,151	369,879	2,220,800	357,269	454,635	54,129	871,516	7,692	59,310	1,804,550	416,249	109,100	304,305	128,580
Mobile & Ohio	1,122	817,989	95,875	967,550	97,170	161,643	32,204	352,636	2,458	29,747	675,858	291,692	33,953	257,437	75,149
Morgan's La. & Tex. R. R. & S. S. Co.	405	215,481	80,419	328,969	50,704	60,809	12,297	135,595	1,965	11,662	272,597	56,371	20,013	36,194	—5,393
New Orleans, Mobile & Chicago	403	114,817	19,422	141,950	21,880	20,799	3,894	51,192	—32	7,622	105,353	36,597	6,384	29,949	—6,398
Northwestern Pacific	401	97,451	160,312	295,589	43,178	45,727	6,586	113,649	.....	6,431	213,523	82,066	15,451	66,614	—16,099
Oahu Ry. & Land Co.	109	61,800	19,555	89,265	7,641	5,765	807	21,598	.....	3,716	39,527	49,738	7,152	42,586	5,364
Panhandle & Santa Fe	670	276,668	73,450	366,779	90,485	80,808	3,962	98,756	.....	11,167	285,177	81,602	12,082	69,519	15,838
Pere Marquette	2,312	1,038,746	283,649	1,447,930	293,922	271,036	29,398	553,732	3,547	39,092	1,190,695	257,234	46,847	210,249	2,957,931
Philadelphia & Reading	1,120	3,292,487	540,891	4,017,617	486,244	718,311	38,217	1,348,831	13,936	73,178	2,675,883	1,341,733	99,485	1,241,508	—33,004
Pittsburgh, Shawmut & Northern	294	126,179	7,922	136,021	16,355	30,352	1,558	43,416	.....	3,850	95,531	40,491	1,599	38,890	11,171
Port Reading	21	96,031	.....	117,819	13,073	4,597	38	36,514	.....	336	54,548	63,271	12,000	51,271	—1,892
St. Louis, Brownsville & Mexico	548	129,235	53,382	199,485	26,545	19,063	5,964	69,082	.....	9,860	130,481	69,004	6,479	62,411	34,241
St. Louis, Iron Mountain & Southern	3,365	1,769,700	378,552	2,313,415	377,655	472,793	67,668	735,627	6,405	67,311	1,727,459	585,956	110,405	473,930	—238,667
St. Louis, San Francisco & Texas	235	57,711	18,584	82,544	21,790	14,184	2,295	42,977	.....	3,853	85,098	—2,554	1,216	—3,770	8,814
Southern in Mississippi	281	43,470	22,013	71,587	20,957	7,496	1,879	36,059	.....	3,548	69,938	1,648	8,375	—6,729	—815
Spokane International	163	46,678	9,665	58,816	11,229	4,640	2,044	19,911	.....	3,144	40,968	17,848	4,108	13,741	—17,527
Spokane, Portland & Seattle	556	166,469	114,424	314,870	87,971	32,831	7,400	83,544	3,410	12,627	227,783	87,087	53,400	33,506	—41,412
Texas & New Orleans	469	210,872	75,784	318,361	64,628	59,679	8,209	124,793	5,143	10,561	272,543	45,818	15,805	29,716	58,729
Ulster & Delaware	129	46,765	21,337	84,079	16,025	15,888	4,385	35,701	56	4,224	76,279	7,800	3,300	4,502	—25,497
Western Pacific	943	306,000	158,162	503,578	95,689	57,931	24,368	167,531	15,503	16,776	377,799	125,779	30,580	95,188	73,586
Wheeling & Lake Erie	512	411,681	41,030	491,283	56,254	85,828	9,232	172,246	1,380	13,332	338,272	153,011	32,278	120,733	19,828

ELEVEN MONTHS OF FISCAL YEAR ENDING JUNE 30, 1915

Atlantic City	170	$724,469	$1,290,335	$2,121,404	$414,997	$258,137	$25,703	$1,071,604	$1,056	$17,607	$1,788,165	$333,240	$148,500	$184,371	—$23,511
Birmingham Southern	43	430,357	9,323	738,089	145,979	131,949	6,205	277,967	.....	38,175	600,275	137,815	27,103	110,712	—175,623
Boston & Maine	2,302	24,608,950	14,083,745	42,637,216	6,550,151	6,303,601	394,389	18,621,810	182,779	1,072,092	33,124,822	9,512,394	1,780,478	7,731,915	1,201,816
Central Vermont	411	2,431,935	799,725	3,502,747	444,502	575,631	94,063	1,622,739	23,292	79,586	2,839,814	662,933	173,360	488,842	338,846
Chicago & Eastern Illinois	1,282	9,555,860	2,529,897	13,142,499	2,006,476	2,895,958	264,454	4,979,979	88,427	401,564	10,627,365	2,515,134	582,400	1,931,310	189,829
Colorado & Southern	1,102	5,275,673	1,271,731	7,072,242	857,219	1,619,799	113,697	2,231,110	42,857	220,717	5,085,400	1,986,842	387,445	1,599,040	159,455
Denver & Rio Grande	2,571	14,669,223	3,982,048	19,957,462	2,337,910	3,649,188	429,294	5,834,049	300,547	602,855	13,144,541	6,812,920	947,300	5,864,356	232,909
Denver & Salt Lake	255	1,129,224	288,519	1,499,268	183,622	257,103	25,448	503,095	.....	57,595	1,023,401	475,867	67,500	408,367	203,945
Detroit, Toledo & Ironton	441	1,385,403	150,547	1,635,330	212,829	260,762	41,710	956,648	.....	63,499	1,535,447	99,883	60,500	39,383	765,710
Duluth, South Shore & Atlantic	627	1,621,653	782,029	2,643,805	494,857	389,915	86,317	1,051,022	41,049	113,096	2,176,255	467,550	175,970	291,473	—131,199
Duluth, Winnipeg & Pacific	185	958,970	167,369	1,182,101	175,672	189,929	23,004	436,711	10,185	67,662	903,165	278,936	58,993	219,942	—57,981
†Cripple Creek & Colorado Springs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galveston, Harrisburg & San Antonio	1,346	6,793,631	2,726,898	10,308,942	1,499,431	1,750,041	323,888	4,506,783	102,032	386,138	8,560,035	1,748,907	424,621	1,322,442	—86,510
Georgia, Southern & Florida	395	1,193,432	599,445	2,054,893	274,454	404,043	78,880	845,453	4,484	113,209	1,720,522	334,371	106,041	226,420	—80,457
Gulf, Colorado & Santa Fe	1,937	11,659,033	2,695,301	15,122,034	2,214,276	2,236,301	309,035	5,386,635	.....	382,517	10,516,512	4,605,522	523,054	4,078,978	1,923,887

†Succeeded Florence & Cripple Creek on May 1, 1915. No cumulative figures shown.

REVENUES AND EXPENSES OF RAILWAYS

Eleven Months of Fiscal Year Ending June 30, 1915—Continued

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.			
Houston East & West Texas	191	$890,708	$278,308	$1,243,028	$213,453	$185,588	$20,845	$499,981	$1,838	$35,183	$956,619	$286,409	$45,441	$240,624	—$55,376
Houston & Texas Central	886	4,288,186	1,344,109	6,070,053	1,092,138	857,687	169,237	2,440,045	26,278	193,609	4,773,978	1,296,075	280,025	1,014,608	363,937
*Kansas City, Mexico & Orient	208	.....	.....	2,019,191	255,372	355,303	75,278	629,159	28,163	70,507	1,413,633	605,558	112,884	492,121	5,985
Louisiana Western	3,865	1,264,637	613,594	30,519,627	4,109,318	4,122,553	603,445	11,161,555	273,371	949,731	21,057,552	9,462,075	1,217,158	8,227,042	1,591,834
Missouri, Oklahoma & Gulf of Texas	19	112,480	3,000	118,261	17,884	37,687	2,402	51,637	.....	5,803	115,414	2,847	1,879	968	—8,667
Missouri Pacific	3,920	19,529,950	4,290,773	25,983,639	3,409,991	4,994,472	633,348	10,233,970	82,860	644,005	19,998,647	5,984,992	1,105,060	4,859,591	1,675,663
Mobile & Ohio	1,122	8,381,625	1,134,158	10,099,700	1,004,053	1,747,682	426,177	3,846,942	28,484	318,665	7,372,002	2,727,698	351,638	2,374,429	112,226
Morgan's La. & Tex. R. & S. S. Co.	405	2,769,190	958,611	4,088,666	512,437	711,165	125,505	1,621,491	26,187	129,695	3,125,096	963,570	218,922	740,662	1,367
New Orleans, Mobile & Chicago	403	1,296,212	259,044	1,642,096	305,962	224,095	42,645	577,868	—75	76,508	1,227,005	415,091	69,451	345,077	—280,160
Northwestern Pacific	401	1,225,574	1,615,019	3,214,836	561,094	458,063	56,018	1,265,919	.....	87,367	2,390,380	824,455	175,100	649,231	—141,326
Oahu Ry. & Land Co.	109	808,516	234,266	1,120,235	108,148	92,439	7,433	237,423	.....	45,677	491,121	629,115	78,978	550,136	33,180
Panhandle & Santa Fe	669	2,878,456	642,401	3,697,567	738,979	746,451	42,495	1,147,100	.....	97,911	2,772,936	924,631	105,031	818,481	446,528
Pere Marquette	2,316	11,574,824	3,611,960	16,574,234	1,681,698	3,236,157	347,066	6,489,007	48,783	462,101	12,261,524	4,312,710	470,539	3,840,317	5,586,031
Philadelphia & Reading	1,120	34,709,485	5,906,338	42,682,094	4,166,291	7,791,169	490,578	15,222,414	175,272	776,516	28,608,574	14,073,520	1,099,588	12,968,296	—1,074,492
Pittsburgh, Shawmut & Northern	294	1,549,583	111,856	1,683,463	281,403	447,277	18,508	556,936	.....	46,095	1,350,219	333,244	17,835	315,409	45,924
Port Reading	21	1,142,817	.....	1,390,489	128,325	82,316	425	468,007	.....	3,599	682,660	707,830	132,000	575,830	54,036
St. Louis, Brownsville & Mexico	548	1,271,897	651,898	2,106,616	367,448	226,370	60,181	770,241	.....	117,771	1,532,803	573,813	69,902	503,130	45,602
St. Louis, Iron Mountain & Southern	3,364	20,828,700	4,735,010	27,670,450	3,997,056	5,065,220	661,344	8,791,865	87,439	715,555	19,318,478	8,351,972	1,230,973	7,102,542	—2,695,581
St. Louis, San Francisco & Texas	235	675,027	250,420	991,154	240,021	170,804	22,837	472,117	.....	44,753	950,531	40,623	12,477	28,116	—157,790
Southern in Mississippi	281	558,306	289,660	928,866	241,284	95,190	25,936	434,864	.....	40,371	837,646	91,220	92,782	—2,039	—146,791
Spokane International	163	516,414	144,807	694,975	121,022	51,809	24,700	230,618	.....	38,305	466,454	228,522	47,257	181,137	—172,910
Spokane, Portland & Seattle	556	2,371,828	1,291,435	4,041,228	647,614	391,915	83,414	959,726	36,827	146,633	2,265,922	1,775,307	587,400	1,185,661	—223,835
Texas & New Orleans	469	2,274,817	943,162	3,576,800	603,125	864,675	87,177	1,460,568	89,599	116,150	3,219,598	357,202	174,740	180,449	4,558
Ulster & Delaware	129	482,242	296,026	937,079	143,728	186,894	18,560	434,203	652	39,553	823,590	113,489	36,300	76,490	92,525
Western Pacific	943	3,617,309	1,155,160	5,093,106	1,048,383	656,411	265,937	1,719,554	126,036	220,996	4,037,318	1,055,788	317,587	736,808	156,280
Wheeling & Lake Erie	512	3,886,134	504,552	4,835,150	535,074	941,196	103,637	1,907,284	13,950	158,814	3,659,955	1,175,195	345,892	829,302	—1,014,350

*Operations began July 6, 1914. No figures shown for eleven months.

Traffic News

Through train service on the National Transcontinental between Toronto and Winnipeg was begun on July 14. The through train is to be known as the National, and makes the run in 42 hours.

The Union Pacific has announced that effective at an early date, to be announced later, only one coupon will be required on tickets reading to points on or reached by any one or more of the Union Pacific System lines, instead of a separate coupon as heretofore for each of the system units.

The Atlantic Coast Line has made arrangements for the exhibiting of products of the south at a number of fairs to be held in the fall in New York, Pennsylvania, West Virginia and Maryland. Co-operation of the farmers in Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama is asked and arrangements have been made for an express car to carry the exhibit, leaving Wilmington, N. C., about August 15.

The number of ocean-going vessels which passed through the Panama canal during the month of May was 141. This is more than used the canal during any preceding month. The previous highest number was 136 for March. The cargo passing through the canal in May amounted to 578,708 tons. The cargo traffic during March amounted to 635,057 tons. During May 75 vessels passed through the canal eastbound and 66 westbound. Thirteen of the vessels were in ballast. The average loading of the 128 vessels which carried cargo was 4,961 tons.

Railroads serving New York harbor have agreed to furnish importers of South American beef with one car to a float at a cost of $4 to $6 a car. Heretofore six cars were furnished to a float and a charge made of $9 for each car not used. The Argentine beef importers have claimed that adequate facilities are not furnished them by the trunk lines and have filed briefs with the Interstate Commerce Commission. The action of the railroads is in answer to one of the complaints of the importers, and the other complaint that the railroads do not or cannot furnish refrigerator cars will be answered before the Interstate Commerce Commission.

James McCrea, general manager of the Long Island, has given out a statement showing the passengers handled and delays to trains over the Fourth of July holidays in 1915, together with comparisons for the previous six years. The total number of passengers carried on trains in five days was 917,917 in 1915, comparing with 893,667 in 1914, and 588,500 in 1909. The number of passenger-train movements to handle this business was 5,015 in 1915, comparing with 5,441 in 1914 and 4,178 in 1909. During this time in 1915 there were 780 carloads of express and baggage movement, comparing with 894 in 1914 and 381 in 1909. The average delay to all trains in 1915 was 2 min. and 45 sec., comparing with 3 min. and 3 sec. in 1914 and 2 min. and 22 sec. in 1909. Of the total 4,097 scheduled trains 2,636 were on time and the average delay to each train that was late was 7 min. and 42 sec.

Some States Freed from Quarantine

The Department of Agriculture announced on July 19 that the last remaining quarantine for foot and mouth disease in Rhode Island and Ohio had been raised, parts of these states having been under quarantine since last fall. Three counties in Illinois have been entirely freed, and the only "exposed area" is now the union stock yards in Cook county. Eight counties in Pennsylvania have been freed, leaving only Allegheny, Chester, Jefferson, Lebanon and Philadelphia under quarantine. In Massachusets quarantine has been raised from Plymouth and Worcester counties, leaving only the Brighton stock yards and abattoir under quarantine in the states. In West Virginia the whole of Jefferson county has been freed, leaving a part of Berkeley county the only territory still under quarantine in the state. In New Jersey, Bergen, Essex and Union counties have been freed from quarantine, leaving Hudson the only territory in the state under quarantine.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has given out a decision written by Commissioner Clements, in which it is held that the carriers have not justified proposed charges for trap or ferry car service in trunk line, Central Freight Association western trunk line, trans-Missouri, and southwestern territories and Chicago. The schedules naming the proposed charges are required to be cancelled. A more complete abstract of the report will be given in this column next week.

Examiner Dow held a hearing in Chicago last week and the first part of this week on tariffs filed by the eastern railways advancing the rates on livestock, meats and packinghouse products from Chicago and St. Louis to the East, and on livestock in Central Freight Association territory, which have been suspended by the Interstate Commerce Commission. The tariffs provide for rates from Chicago to New York on dressed beef, 47½ cents; on cattle, 33 cents; hogs, 33 cents; packinghouse products, 33 cents and bulk meats, 38 cents per hundred pounds. Witnesses who testified for the railroads were L. E. Oliphant, chief of tariff bureau of the Lake Erie & Western; W. C. Maxwell, general traffic manager of the Wabash, and William Hodgdon, freight traffic manager of the Pennsylvania Lines.

Rates on Stone and Marble to St. Paul, Minn.

In re rates on stone and marble in carloads not polished, lettered, or figured, from Chicago and Peoria, Ill., to St. Paul, Minn. Opinion by the commission:

The commission finds that the carriers have justified proposed increased rates on stone and marble, not polished, lettered, or figured, from Chicago and Peoria, Ill., to St. Paul, Minn., in the case of stone and marble, sawed or dressed, but not in the case of rough stone and marble. (34 I. C. C., 390.)

Complaint Dismissed

George M. Spiegle & Co. et al. v. Southern Railway. Opinion by Commissioner Hall:

Defendant's rules and regulations applying to lumber handled in transit at Newport, Tenn., are not found to be unreasonable or discriminatory. It is also found that the charges on lumber bought by complainants at points between Newport, Tenn., and Asheville, N. C., shipped to Newport, and reshipped from the latter point under transit rates through Asheville to Virginia cities and east, are not unreasonable. Reparation denied. (34 I. C. C., 448.)

Rates to Montrose & Delta Counties, Colo.

Montrose & Delta Counties Freight Rate Association v. Denver & Rio Grande et al. Opinion by Commissioner Hall:

The commission finds in this case that the rates on classes and certain commodities from Missouri river points and points east thereof to Montrose, Olathe, Delta, Hotchkiss and Paonia, Colo., are not unreasonable or discriminatory. Montrose is typical of these points. The Denver & Rio Grande maintains two routes from Salida, Colo., to Montrose. Originally shipments from the east moved through Pueblo to Salida and were there transferred to the narrow gage line running through Marshall Pass to Montrose. Later when a standard-gage line was opened through Tennessee Pass and Grand Junction with a branch to Montrose, shipments were sent over the standard-gage line throughout. The latter is much longer, but the freight does not have to be transferred, the grades are easier and the supply of equipment greater. Because of the decision in *Grand Junction Chamber of Commerce v. D. & R. G.*, 23 I. C. C., 115, the carrier was led to accord to Grand Junction rates not in excess of those to Salt Lake City, but this basis of rates was not extended to points not directly intermediate. Early in 1915, following the decision in *Class and Commodity Rates to Salt Lake City*, 32 I. C. C., 551, increases in rates were made to Salt Lake City, Grand Junction, Montrose and other points. The commission finds that the former reduction in rates to Grand Junction because of competition or an order of the commission is no justification for a similar reduction in rates to a branch line point not intermediate to Grand Junction, such as Montrose. (34 I. C. C., 393.)

Montrose & Delta Counties Freight Rate Association v. Denver & Rio Grande et al. Opinion by Commissioner Hall:

The commission finds that the rates on apples, deciduous fruit, potatoes, onions and other vegetables from points in Montrose and Delta counties, Colo., to destinations in the east are not unreasonable or discriminatory. Upon the record in this case the commission is not prepared to require the establishment of rates on low-grade apples in bulk from Montrose and Delta counties to various destinations in the east lower than the rates on apples in packages contemporaneously in effect between the same points. The question is held to be of sufficient importance, however, to merit further consideration by the defendants. It is also found that the charges for the refrigeration of shipments noted above are not unreasonable. (34 I. C. C., 400.)

Montrose & Delta Counties Freight Rate Association v. Denver & Rio Grande et al. Opinion by Commissioner Hall:

The commission finds that the rates on classes and certain commodities from Los Angeles and San Francisco, Cal., and related points, to Delta, Olathe, Montrose, Hotchkiss and Paonia, Colo., are not unreasonable or discriminatory. Complaint dismissed. (34 I. C. C., 409.)

Weighing of Livestock at Kansas City

Kansas City Live Stock Exchange v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Hall:

Complaint is made against the following tariff provisions; first, those providing that when cars are not track scaled the hoof-selling weights, less certain fill allowances, shall be the basis for freight charges, and second, those forbidding track-scale weights, if taken, to be set aside in favor of hoof-selling weights unless the difference between these weights amounts to 1,000 lb. a car, under some tariffs, or 500 lb. a car under others.

The commission finds that the assessment of freight charges upon hoof selling weights, less the fill allowances, is not unlawful, but the requirement that the variation between weights taken on track scales and hoof-selling weights shall amount to 1,000 lb. a car as a condition to setting aside the one in favor of the other is found unreasonable. According to the findings in the case *In re Weighing of Freight by Carriers*, 28 I. C. C., 7, it is held that a sufficient variation would be 500 lb. (34 I. C. C., 423.)

Western Trunk Line Rules

In the matter of western trunk line rules, regulations and exceptions to classifications. Opinion by Commissioner Meyer:

Western trunk lines circular 1-K, I. C. C., No. A-513, containing special rules and regulations and exceptions to classifications, filed to become effective October 1, 1914, was suspended by the commission until January 21, 1915, and further suspended until July 29, 1915. The commission makes the following findings relative to this circular:

The rule providing in effect for a carload rating on miscellaneous freight in mail sacks is disapproved. The elimination of rules for mixtures of salt and different kinds of pitch and tar in carloads with cement, lime, stucco and plaster is approved. The cancellation of the rule providing for the shipment of cigarette papers with smoking tobacco at the tobacco rating is approved. Corn starch is held to be an uncooked cereal food product and ordered continued in the list of uncooked grain or cereal food products manufactured from corn subject to corn rates. The class B rating on iron and steel pipe applied as a proportional basis is ordered continued. The cancellation of the rule providing for a rate on plastering hair or fiber with carload shipments of lime or plaster 25 per cent above the carload rate on lime or platser at actual weight is approved. The elimination of the provision for fifth-class rating on straight or mixed carload shipments of stove-pipe iron, stove-pipe, stove-pipe elbows, and coal hods, and for mixed carloads of the foregoing articles and sheet-iron dripping pans and stove elbows is authorized. An

increase to 50,000 lb. of minimum carload weight on scrap iron into concentrating points is approved. Numerous other rules are discussed and changes authorized for publication in a revised circular.

Attention is directed also to the views of the commission in *Investigation and Suspension Docket 76*, respecting publicity of proposed changes and method of classification procedure, and the opinion is expressed that if the classification committee had given these changes greater publicity the present proceeding would probably not have been necessary. Where provisions are eliminated from one tariff in anticipation of publishing them in another the two tariffs should be amended simultaneously.

Rates on Bituminous Slack Coal to Martins Creek, Pa.

Alpha Portland Cement Company v. Baltimore & Ohio et al. Opinion by Commissioner Clements:

The commission finds that a rate of $2 a gross ton on bituminous slack coal in carloads to Martins Creek, Pa., from mines in the Fairmont region of West Virginia and in the Westmoreland region of Pennsylvania are not unreasonable or discriminatory. It also holds that the requirement of a differential between slack and other sizes of bituminous coal would not be justified.

The complainants asked for a rate of $1.45 on slack and $1.65 on other grades of bituminous coal and produced figures showing that the cost of carrying this traffic was about $1.42 a gross ton. The commission notes:

"In determining the reasonableness of rates, cost of service is one of several factors to be considered, and, while carriers are not entitled to receive more than a reasonable rate on any traffic, in cases where it appears that the rate challenged is in harmony with a general adjustment between a large number of producing regions and an extensive consuming territory consideration must be given not only to the accuracy of cost estimates, but to the probable effect of a substantial reduction on the main body of rates. Complainant's estimates of observed cost may be reasonably accurate, but its total operating cost estimates are, after all, approximations based on general averages of the various carriers which may or may not be correct on the particular traffic in question and they do not, of course, take into consideration the comparative values of the lines traversed and equipment used and of all lines and equipment of the carriers defendant. These estimates, which are elaborate and represent much labor, may be the most complete that can be furnished in advance of a complete valuation of the properties of the carriers, but we do not feel justified upon the showing made thereby in making a finding of unreasonableness in the rate challenged." (34 I. C. C., 414.)

Rates on Pulpwood from Points in Minnesota

Pulp & Paper Manufacturers' Traffic Association v. Chicago, Milwaukee & St. Paul, et al. Opinion by Commissioner Clark:

In the commission's original report in this case, 27 I. C. C., 83, it was found that the carload rates on pulp wood from points in Minnesota to gateways and junctions of connecting carriers in that state, applying on shipments to Wisconsin and Michigan were unreasonable, and reasonable maximum rates were prescribed, effective August 1, 1913. The Duluth & Northern Minnesota was one of the defendants, but it did not file an answer to the complaint, or offer any testimony. It did, however, comply with the order by filing proper tariffs. In December, 1914, it sought to enjoin the enforcement of the order. The court granted a preliminary injunction, but in February, 1915, dissolved the latter and dismissed the bill. In March, 1915, the carrier filed a petition for a rehearing.

The stock of this railroad is held by Alger, Smith & Company, or by stockholders of that company and the owning interest supplies 50 per cent of the road's tonnage. The carrier produced cost figures showing a deficit from operation in 1914, but the commission refuses to hold this year a representative one, as there have been surpluses in previous years. It also appeared that the carrier's principal interest in the rehearing was to have the commission find that the rates prescribed were unreasonably low, so as to enable it to use such finding as a shield when certain outstanding reparation claims were represented. The commission, therefore, is unable to release the petitioner from the requirements of the order. (34 I. C. C., 500.)

Shipper's Load and Count

Louisiana State Rice Milling Company v. Morgan's Louisiana & Texas et al. Opinion by Commissioner Clements:

The complainant protests against practice provided for under rule No. 23 of western classification No. 51 reading:

> Freight loaded by shipper and not checked by carrier must be receipted for "shipper's load and count."

The commission holds that this rule is not contrary to the Carmack amendment, and that it is not a limitation upon carriers' liability as is contemplated by the prohibitions of the Cummins amendment. "It does not appear that the rule operates to limit the liability of the carrier for the full value of the property shipped but, in its application to a claim for loss because of alleged failure to deliver the whole amount transported, has the effect of placing the burden upon the shipper who loads on his private track to prove that the amount specified was loaded and that a less amount was taken out of the car by the consignee; whereas in the case of a receipt not so qualified the burden is upon the carrier to prove that the amount specified in the bill of lading was either not in fact loaded, or was delivered, or otherwise to settle for the full value thereof."

The commission finds that the rule is not unreasonable and dismisses the complaint. (34 I. C. C., 511.)

The Shreveport Case

J. J. Meredith, Shelby Taylor, and Henry B. Schreiber, constituting the Railroad Commission of Louisiana v. St. Louis Southwestern et al. Opinion by Commissioner Hall:

The commission's first order in this case was made March 11, 1912, in 23 I. C. C. 31. That order was upheld by the Commerce Court April 25, 1913, in 205 Fed. 380 and by the Supreme Court June 8, 1914, in 234 U. S. 342.

The order, save in so far as it required the establishment of new rules to govern the concentration of cotton ran only against three of the defendants, the Texas & Pacific, the Houston, East & West Texas, and the Houston & Shreveport. It required the establishment by them of specified class rates on shipments by their lines from Shreveport, La., to specified destinations in Texas, which rates were established July 1, 1912. It further required that these three defendants "abstain from exacting any higher rates for the transportation of any article" from Shreveport to Dallas, Tex., and points intermediate via the line of the Texas & Pacific, and from Shreveport to Houston, Tex., and points intermediate via the lines of the Houston, East & West Texas and the Houston & Shreveport, "than are contemporaneously exacted for the transportation of such article from Dallas or Houston for an equal distance toward said Shreveport."

The case is now brought up again by a petition of the Louisiana authorities requesting (1) the establishment of reasonable class rates from Shreveport such as were previously prescribed over the lines of the three defendants to all points on the lines of all the defendants, and (2) the application of no higher rates upon all commodities from Shreveport to all points on the lines of all defendants than for like distances from any points on said lines eastbound to destinations in Texas. The petition alleges that the other defendants will not establish a uniform scale of rates except upon a supplemental order; and that as a result shippers over the three lines whose rates have been adjusted in conformity with the order of March 11, 1912, will have an undue advantage.

The commission now finds:

The evidence upon supplemental hearing shows no material change in transportation conditions over the lines of defendants, either from or toward Shreveport, since this proceeding was first before the commission.

Class rates are prescribed for transportion from Shreveport to points in eastern Texas, and also from points in eastern Texas, toward Shreveport, on the lines of all the defendants.

As the transportation conditions for the competitive hauls here involved are substantially similar, justice demands that the same classification shall apply to all, and consequently that the western classification shall govern on traffic via the lines of these defendants from points in eastern Texas toward Shreveport.

It is discrimination for defendants to charge higher rates upon any commodity from Shreveport into eastern Texas than on such commodity for an equal distance from points in eastern Texas toward Shreveport; and such commodity rates should not exceed, distance considered, the corresponding class rates named herein.

It constitutes discrimination against Shreveport for defendants

to charge higher inbound rates on uncompressed cotton from eastern Texas to Shreveport for concentration there than they charge, distance considered, on uncompressed cotton to concentration points in eastern Texas. (34 I. C. C., 472.)

The St. Louis Terminal Case

In the matter of terminal allowances and rates at St. Louis, Mo., and East St. Louis, Ill. Opinion by Commissioner Harlan:

In 1906 when St. Louis, East St. Louis and a number of other stations were made into a definite rate point in the 117 per cent zone, the eatsern carriers, which hitherto had had terminals in East St. Louis only, were obliged to receive traffic for through movement to and from St. Louis itself under through bills of lading. For a while they undertook to do this by moving their freight across the river under an agreement with the Terminal Railroad Association of St. Louis which controls the four means of transportation across the river, namely, the Eads bridge, the Merchants bridge, the Wiggins ferry and the Interstate car transfer. It was found that the terminal association did not have sufficient facilities in St. Louis to enable it to handle all the additional traffic with promptness. The eastern carriers, in order to give the public a service that was sufficiently prompt, were compelled to make arrangements with certain transfer companies to move the freight by wagon between St. Louis and East St. Louis. As a part of the arrangement, the transfer companies undertook also to furnish and operate stations in St. Louis where they could receive and deliver freight for the carriers.

These freight stations in St. Louis, are often referred to as "off-track" stations because they are not reached by the rails of any carrier. Although the western lines have rail depots of their own in St. Louis, many, if not all, of them have made similar arrangements with the transfer companies. This arrangement was made by the carriers only with such transfer companies as had warehouses that could be used as freight stations. These are the St. Louis, the Columbia, the Fidelity and the Central Transfer companies. In most instances the first floor of the warehouse is considered the station of the carriers, the floors above being used by the transfer companies in their private business as warehousemen. Obviously the transfer companies that conduct a private warehouse business are enabled, under this arrangement, to save all cartage expense that other warehouse companies, not participating in this arrangement with the carriers, must pay, and it is on this ground that the allegation of discrimination rests. The off-track stations, however, are intended for the use of the general shipping public without restriction and it is shown that these freight stations have proved to be a substantial aid in the prompt handling of traffic into and out of St. Louis.

The carriers, finding the above arrangement so successful, also made arrangements with the same transfer companies, and also with others, for hauling the traffic by wagon between the East St. Louis rail stations and the store doors of shippers and consignees in St. Louis, without passing it through the off-track stations, but through what is referred to by the carriers as their "constructive" stations on the west bank of the river. These stations are simply an undefined point on the river bank and have no corporeal existence. By employing the transfer companies as their agents, the eastern lines perform a "constructive" station service, making at the undefined point on the west bank a purely nominal or constructive delivery of the inbound shipment and in the same manner an imaginary acceptance of outbound traffic, the freight not being moved from the wagon in either case. The rail rate takes the traffic to and from the constructive point, the cartage charges of the transfer companies being paid by the carriers. The shippers and consignees pay the cartage charges, however, between the incorporeal station and their store doors.

Besides operating the "off-track" stations, the transfer companies perform certain other services as agents of the carriers. They undertake to quote rates. They collect charges on shipments and remit the amounts to the carriers. They do not issue bills of lading; they issue dray tickets on outbound shipments, which may be surrendered to the carriers by the shipper for a bill of lading. In handling traffic to and from the constructive stations, however, nothing of this kind is done by the transfer companies.

The commission is of the opinion that the operation of the off-track stations is not unlawful and that it does not result in discriminations that are undue.

It is found, however, that the constructive receipt and delivery of traffic at incorporeal stations at the undefined points on the west bank of the river is not available to all shippers and should be condemned unless that fault is corrected. It is agreed that the carriers' service begins and ends at the undefined point. The undefined point, if comparable with anything physical, must therefore be regarded as taking the place of a station for less-than-carload traffic and a team track for carload traffic. In either case the right to use this constructive service is limited to shippers who approach the constructive terminals through the agency of transfer companies designated by the carriers. They may not, with their own vehicles, go to the constructive stations to deliver or receive their traffic. In other words, the right of a shipper to have an east side line extend its service to and from these undefined points depends upon his willingness to employ the carrier's agent to haul his traffic between those points and his store door. If he employs a transfer company designated by the carrier he may have the service; if he uses his own vehicle the service is denied to him. The result is an unjust discrimination which must be corrected. (34 I. C. C., 453.)

Rates on Lumber from Southern Points

In re rates on lumber from southern points to the Ohio river crossings and other points. Opinion by Commissioner McChord:

The southern carriers have proposed to increase the rates on lumber and articles taking the same rates from the producing regions of the southwest, the Mississippi valley, and the southeast to St. Louis, East St. Louis, Thebes and Cairo, Memphis and the Ohio river crossings. The proposed increases average about one cent a 100 lb., except that the increases are greater than one cent in those instances where the present rates on hard wood are less than the rates on pine. The territory of production involved is as follows: (1) The southwestern territory, including part of Oklahoma, Missouri and northern Arkansas, and the territory embraced in the so-called southwestern yellow-pine blanket, bounded on the north by the Arkansas river, on the east by the Mississippi river, on the south by the Gulf of Mexico, and on the west by a line drawn through Kansas City and Houston, Tex.; (2) Mississippi valley territory, the region lying east of the Mississippi river and on the west of the line of the Mobile & Ohio; (3) southeastern territory, embracing Georgia and Florida, and parts of Alabama and Tennessee.

The methods of constructing through rates from the territories of origin to points in central freight association and trunk line territories are not uniform. From the southwest the local rates to the gateways are generally used also as proportional rates and are added to other local or proportional rates beyond the gateway to make the through rates. The present yellow-pine rate to Cairo, Ill., for example, is 16 cents, both local and proportional. The rate from Cairo to Chicago is 10 cents, making a through rate of 26 cents. From Mississippi valley territory to the consuming territory north of the Ohio through rates are made by combination upon the Ohio river crossings, except in a few cases, and they are in some cases published as joint through rates. From southeastern territory there is a dual system of rates, one set being the rates to the crossings proper and the other the proportional or basing rates. The same increases are proposed in both.

The principal reasons given by the southwestern lines for the increases are the following: (1) They need more revenue; (2) the rates are unusually low, having been made for the purpose of aiding an industry which was struggling to overcome the prejudices against it and market its product in competition with other woods; (3) the prejudice no longer exists and competition is almost a thing of the past; (4) water competition, which originally influenced the rail rates, is now negligible.

The southwestern lines taken collectively are not prosperous. A consolidated statement, filed on behalf of 26 of these lines, shows that from 1903 to 1914 their mileage increased from 24,897 miles to 34,012 miles, and that their total operating revenue increased during the same period from $166,516,000 to $287,116,000. In spite of this, the net operating income decreased during the same period from $45,269,000 to $44,175,000, the average net operating income for the whole period being only

$48,937,000. The ratio of net operating income to property investment account of these roads in 1903 was 4.78 per cent, while in 1915 it was 2.84 per cent. The average ratio for the entire period was 3.78 per cent, while for 35 railway systems in official classification, which were interested in the *Five Per Cent case*, the ratio was 5.41 per cent. Even though the carriers may not be prosperous it does not follow, in the commission's opinion, that they should get additional revenue by means of an increase in the rates on lumber, for the latter may at present be contributing its fair share of revenue.

The respondents show that commendable efforts have been made by some of them to conserve their revenues, with gratifying results, and the St. Louis & San Francisco is chosen as typical. During the period beginning June 30, 1913, and ending November 30, 1914, that carrier, by increasing its trainloads, reducing the amounts paid for loss and damage, reclaiming scrap material, and in numerous other ways, effected a saving of $931,526. The extent to which the other carriers in the southwest have been able to conserve their revenues is not shown in the record, but the evidence just detailed suggests that it is possible to better materially the financial condition of these lines without an increase in the rates on lumber.

The commission, therefore, finds that the proposed increased rates on yellow-pine lumber from the southwestern blanket to St. Louis, Mo., and East St. Louis, Thebes and Cairo, Ill., have not been shown to be reasonable. The evidence of record also does not show that the rates from Little Rock, Ark., and Pine Bluff, Ark., to Memphis, Tenn., should be increased to the blanket basis. The commission in *Northbound Rates on Hardwood*, 32 I. C. C., 521, held that was no good reason why the rates on hardwood lumber should not be as high as the rates on yellow pine. For that reason the commission will now allow increases in the rates on hardwood from the blanket to St. Louis, Cairo, etc., to the extent that they do not exceed the rates on yellow pine.

The carriers proposed also to make increases of one and two cents in the rates on all kinds of lumber to the gateways named from points north of the Arkansas river. These increases are not found reasonable. Because of its difficult operating conditions, however, the Chicago, Rock Island & Pacific will be allowed to increase a basing rate to Thebes and Cairo from stations Hazen, Ark., to Galloway, inclusive, on its Memphis branch and to increase its rates to Memphis from certain other points on that branch. Increases to Thebes and Cairo are also allowed from certain stations on the Missouri & North Arkansas.

A proposed cancellation of a local rate to Cairo from points on the Texas & Pacific is found not to be justified. Proposed increased rates to Louisville and Cincinnati from stations on the Rock Island, Walker Spur, La., to Eunice; Fitch, Ark., to Apex; and Milams, La., to Meridian, La., are also found to be unreasonable.

The commission also refuses to allow the carriers to make increases averaging two cents in the rates on all kinds of lumber to New Orleans from a number of stations in the southwestern territory.

Concerning the increases proposed by a number of carriers from points east of the Mississippi river the commission holds that these carriers may increase their rates to north bank Ohio crossings by not more than one cent in those instances in which such increases are necessary to effect a spread of one cent between the rates to opposite crossings in accordance with the conclusions in the so-called *Ohio river cases*. In no case may the rates to north bank points be increased more than is necessary to make the rates to those points one cent higher than the rates to the opposite southbound points.

The commission will also allow proposed increased rates to Ohio river crossings from points on the Texas & Pacific, the Vicksburg, Shreveport & Pacific and Southern Pacific lines in Louisiana.

The record shows that cottonwood and gum are not entitled to lower rates than other kinds of hardwood, and the proposed rates on cottonwood and gum are permitted in all cases where they do not exceed the rates on other hardwoods. In no case may the rates on cottonwood or gum or other hardwoods exceed the rates on yellow pine.

Proposed increased rates from Cincinnati to western termini and points in trunk line territory are held not to be justified. (34 I. C. C., 652.)

STATE COMMISSIONS

In last week's issue, page 138, it was incorrectly stated that the Arkansas Railroad Commission had given permission to the Arkansas Central to charge two cents a mile passenger fare. The commission authorized a three-cent rate.

The New York Public Service Commission, Second district, which recently denied the Ulster & Delaware permission to raise its mileage rate above the two-cent maximum set by the legislature has formally denied an application for a rehearing.

William G. Busby, counsel for the Missouri Public Service Commission, has filed a brief with the commission in answer to the briefs of the railroads of the state, that are asking a general advance in freight, passenger and baggage rates throughout the state. The brief opposes the application of the railroads, saying they have failed to justify the proposed increases, and is largely devoted to a defense of the formula for dividing the expenses between freight and passenger service and between state and interstate business, prepared by the accountant for the commission, which was attacked by the railroads during a hearing.

PERSONNEL OF COMMISSIONS

H. A. Herndon, chief draftsman of the Fort Worth & Denver City at Childress, Tex., has been appointed junior mechanical engineer, division of valuation, of the Interstate Commerce Commisison, with headquarters at Kansas City, Mo.

Ledyard P. Hale, counsel for the New York Public Service Commission, Second district, has been given a leave of absence until September 1, because of press of duties as chairman of the public utility committee of the constitutional convention. During his absence, Frank H. Mott, secretary will serve as counsel, and Francis X. Disney, assistant secretary, will succeed Mr. Mott.

M. Maltbie, formerly a member of the New York Public Service Commission, First district, and more recently chairman of the valuation committee of the National Association of Railway Commissioners, has been appointed a member of the advisory board of C. A. Prouty, director, valuation division, of the Interstate Commerce Commission, with headquarters at Washington, D. C.

COURT NEWS

Judge Sanborn of the United States Circuit Court of Appeals has rendered a decision reversing that of the United States district court of Nebraska, that the Union Pacific acted in violation of the Sherman anti-trust act in acquiring a majority of the stock of the St. Joseph & Grand Island. The opinion is concurred in by Judges Carland and Amidon. The court, however, ordered that a perpetual injunction be entered to prevent the St. Joseph & Grand Island while dominated by the Union Pacific from purchasing the line of the Hastings & Northwestern from Hastings, Neb., to Gibbons, 26 miles. The case was remanded to the lower court for a re-trial.

Limitation of Liability—Fire—Interstate Commerce

The Alabama Court of Appeals holds that section 20 of the Interstate Commerce Act, providing that a common carrier shall be liable for loss caused by it, or by any connecting carrier, does not prevent a carrier from exempting itself from liability for goods destroyed by a fire which is not attributable to the carrier's negligence. Central of Georgia v. Patterson (Ala.) 68 So., 513.

Mississippi Spur Track Statute Held Invalid

The Mississippi Supreme Court holds that Laws 1908, c. 88, providing that upon application the Railroad Commission may order railroad companies to construct and maintain tracks to connect with industrial plants, if the tracks can be built without undue hazard to the trains or other property of the railroad, is in conflict with the Fourteenth Amendment prohibiting the taking of property without due process; for it neither provides for compensation to the railroad nor makes the right contingent on the amount of freight offered by the applicant. McInnis v. New Orleans & N. E. (Miss.) 68 So. 481.

Scope of Federal Employers' Liability Act

In proceedings under the New Jersey workmen's compensation act for the death of an employee of the Pennsylvania, who fell off a barge on the Delaware & Raritan canal, in the course of his employment as a boatman, it was held by the New Jersey Supreme Court that, although the employer is a railroad and the canal is an interstate waterway, the federal employer's liability act did not apply so as to supersede the workmen's compensation act, because, as the deceased's employer, the railroad was operating a canal. Hammill v. Pennsylvania (N. J.), 94 Atl., 313.

Right to Fence Right of Way

A railroad built a fence along its right of way to prevent the use thereof as a passageway by the patrons of a neighboring restaurant. In an action by the proprietor of the restaurant for injunction, the Texas Court of Civil Appeals held that the company was within its rights, though there were no other means of ingress or egress to or from the restaurant, as the use of the right of way for such a purpose would largely increase the risk of accident and consequently the liability of the company, and was inconsistent with the use of the right of way for railroad purposes. A railroad may exclude trespassers from its right of way, and take reasonable steps necessary to do so, even though the title to the land it occupies is not vested in it. Ft. Worth & D. C. (Tex.), 176 S. W., 827.

Fares—Overcharges—Statutory Penalties

A railroad's ticket agent gave a passenger, by mistake, a ticket for a station in the opposite direction from his intended destination. The conductor on the train refused to accept the ticket, and demanded the fare in cash. In an action for the statutory penalty for taking or receiving any "greater compensation for the transportation of passengers than is allowed by law," the Arkansas Supreme Court held that, though the carrier was liable for damages for violating the contract of carriage, it was not liable for the statutory penalty, there being no intention to charge or receive more than the legal rate. Judgment for the defendant was affirmed. Smith v. St. Louis, I. M. & S. (Ark.), 176 S. W., 308.

Validity of Contract for Open Farm Crossing

Action was brought to require the Missouri Pacific to maintain an open farm crossing provided for under a contract whereby the railroad's predecessor obtained its right of way across the plaintiff's land. The Kansas Supreme Court holds that such a contract is not contrary to the public policy of Kansas, as indicated by its statutes, and that the contract might be specifically enforced by the land owner, although he had had considerable trouble about cattle getting killed at the crossing, and the railroad desired to erect gates to avoid killing the plaintiff's cattle and to protect the public. Atkinson v. Mo. Pac. (Kan.), 149 Pac., 430.

Stoppage of Trains at Small Stations—Necessity

A decree of the New York Appellate Division required the Boston & Maine to maintain a regular station at a sulphur spring on the outskirts of Saratoga Springs, "at which all its regular trains must stop." There was scarcely a resident in the vicinity whose convenience would be served by the stopping of trains, and the only substantial travel to the station, if any, would be during the summer months. On a motion for contempt against the company for failure to comply with the decree, the court held, on this showing, that all that was contemplated by the decree was the stoppage of regular trains only when necessary to take on or put off passengers who held tickets, or on signal. (Franklin v. Boston & Maine, 153 N. Y. Supp., 688.)

Presentation of Claims for Loss—Waiver of Condition

An intrastate shipment contract in the state of New York provided for the re-icing of perishable fruit at points within the state, and also that the carrier should not be liable on claims for loss, damage, or delay unless they were presented in writing within four months. The company, by deviating from the agreed route, converted the shipment into an interstate shipment, and loss resulted from its failure to properly re-ice the fruit. No claim for the loss was made within four months. In an action for the loss the Niagara County Court holds that by such deviation the railroad became an insurer, and could not avail itself of the exception in the contract, though the exception would have been valid as applied to an interstate shipment. (Lynch v. New York Central, 153 N. Y. Supp., 633.)

Fall of Article from Rack—Burden of Proof of Negligence

In an action for injuries in a passenger car caused by the fall of a suit case from a rack above the plaintiff, the plaintiff testified that it fell about an hour and a half after he got on the train, that he did not change his seat, did not fall asleep, and did not know whether the suit case was on the rack when he boarded the train. It was held by the Wisconsin Supreme Court that the burden was on the plaintiff to show that the suit case was in the rack long enough so that the defendant's employees, in the exercise of reasonable care, should have discovered and removed it, and that the plaintiff had not met this burden. It was a matter of pure speculation how long the suit case had been in the rack before it fell. The complaint was dismissed. Colburn v. Chicago & N. W. (Wis.), 152 N. W., 821.

Trespassing Animals—Duty of Road

The conductor and engineman of a train were warned that horses had got loose and were likely to be found on the track at a certain point. The animals were afterwards killed by the train. The Indiana Appellate Court holds that, though the animals were on the track without right, nevertheless the railroad's knowledge that they were there imposed a duty on it to take due care, by maintaining a reasonable lookout, and, upon discovery, exercising reasonable care to avoid injuring them; and for violation of this duty, resulting in injury to the stock, the railroad was liable. What constituted such reasonable lookout and care were questions for the jury, bearing in mind the railroad's correlative duty safely to carry its passengers, and its duty to itself to preserve its property. Vandalia Co. v. Duling (Ind.), 109, N. E. 70.

Validity of Contracts for Services by Shippers

In an action for freight charges the defendant set up a counterclaim under a contract made in 1894, by which the carrier agreed to pay to the defendant one cent for each 100 lb. of incoming and outgoing freight handled by the defendant, for spotting cars on the defendant's own track. The only question was whether this contract violated the Interstate Commerce Act. The New York Appellate Division held that the contract was one for the performance by the shipper of a duty, which the carriers owes, to place each car so that it can be unloaded, and, there being nothing to show that the service performed by the shipper was not worth the agreed price, the contract did not provide for the payment of a rebate, in violation of the act of 1887, but was within section 15 thereof inserted by the amendment of 1906, providing that, where the owner of property transported under the act directly or indirectly renders any service connected with the tansportation, an allowance therefor shall be no more than is just and reasonable. (New York Central v. General Electric Co., 153 N. Y. Supp., 478.)

Hours of Service—Application to Work Train Service

A fireman on a work train handling only company material between Hiawatha, Mo., and Seneca, Mo., went on duty at 4:30 a. m. and continued on duty until 7:30 p. m., when the train was placed on a siding at Seneca and the fireman remained as watch in charge of the engine until 12:40 a. m. Action was brought by the government in the district court for the first division of Kansas to recover penalties for the violation of the federal hours-of-service act. The defendants claimed that since the work train was handling only company material to be used wholly within the state, the crew was not in interstate service. The courts holds that since the line on which the fireman was working is part of the through main line over which interstate commerce passes, the fireman's service comes within the jurisdiction of the federal law. The opinion by Judge Pollock says in part: "Congress has the constitutional power to regulate commerce among the states. The power to regulate is inclusive of the right to make safe. The purpose of Congress in the passage of the act in question was not alone to conserve the safety of those employees of railways

actually engaged in interstate commerce at the time of the performance of the service, but to further the protection and safety of passengers or co-employees traveling or engaged in interstate commerce from the negligent acts of employees of the road connected with the movement of trains, whether engaged in interstate or intrastate commerce, whose minds, having become clouded and whose senses have become deadened by long-continued service and loss of rest and sleep, and who for such reason may through neglect bring disaster not to themselves or to the train on which they are working, but to other trains moving in interstate commerce, and such are the decisions."

Parol Gift of Right of Way—Continued Use of Spur Track

The owner of land, after a right of way for a spur track had been staked thereon, said to a representative of the railroad company that the land was theirs, to go ahead and take it. The company took possession and laid the track which it maintained with the consent of the owner for more than 20 years. In an action by a subsequent owner of the land to quiet title in the strip occupied by the track, the Iowa Supreme Court holds that there was a parol gift, or at least an irrevocable license for an easement in the right of way. Moreover, during the 20 years other industries were established along the track, which were dependent on the continued use of the spur track, and the railway company had, known to the owners of the land, expended about $4,000 in improving the track. After acquiescing in the use of the track for the advantage of the other industries for so many years, the plaintiff's grantor and himself were estopped from setting up any claim inconsistent with the continued use of the right of way by the defendant. Shimanck v. Chicago M. & St. P. (Iowa), 152 N. W., 574.

Child Held Passenger, Though Paying No Fare

A mother, carrying a girl about nine months old, became a passenger and notified the trainman who collected the fare that she desired to get off at a certain station, and informed him she had never been there. The Alabama Court of Appeals holds that the child, though riding free, was a passenger, and the railroad owed her the same duty as if she had paid fare. In this instance the duty it owed was to give the mother notice that the train had stopped, or was about to stop at her destination, either by calling the station distinctly, or by personal notice, and to stop the train and afford the mother a safe place and reasonable time to alight. While ordinarily the railroad is under no duty to give the passenger personal notice that his particular station has been reached, exceptional circumstances, such as age, or physical infirmity, may impose this duty. Having failed in this duty, and carried the child and the mother beyond destination, and in returning to the destination the child becoming ill as a proximate consequence, it was held that the child could recover. Southern v. Herbon (Ala.), 68 So. 551.

Increase in Rates—Reasonableness

In affirming the judgment of the Appellate Division (159 App. Div. 546, 145 N. Y. Supp., 513), annulling an order of the New York Public Service Commission, Second district, directing a reduction of commutation fares to stations between New York and Peekskill and White Plains on the New York Central, the New York Court of Appeals makes the following rulings: That a lower rate has been in force for some years raises no presumption that an increase is unreasonable, in the absence of a showing that the lower rate was reasonable and compensatory. Because a rate was once compensatory, it will not be presumed that several years later it afforded a fair return, it being common knowledge that the price of materials and scale of wages had increased. In establishing a rate, a railroad is not bound to consider that branch alone for which the rate is applicable, but may take into consideration the cost of operation and rates prevailing over its entire system. In view of the regulations imposed upon railroads, and the public reports required of them, it is improper to assume that they have peculiar knowledge of their affairs, and so should have the burden of justifying an increase in rates, instead of those objecting having the burden of proving that the increase was unwarranted. The question of whether it is impolitic for the railroad to make the increase is immaterial, and the commission should not set aside the increase on that ground. People ex rel. New York Central v. Public Service Commission (N. Y.), 109 N. E., 252.

Termination of Liability for Interstate Freight—Oklahoma Statute

In an action against an initial carrier for damages for delay in transportation of fruit trees, the Oklahoma Supreme Court announced the rule under the statute of that state to be as follows: If intrastate freight, addressed to a place beyond the usual route of a common carrier who has received it, is lost or injured, or if the shipper is damaged by unnecessary or unreasonable delay in transportation, the carrier must, within a reasonable time after demand, give satisfactory proof to the consignor that the loss, injury, or damage did not occur while it was in its charge, or because of delay caused by it, or it will be liable therefor. The demand for such proof must be direct and specific, and a simple request or demand for payment of the loss or damage does not bring the shipper within the requirements of the statute. The shipper in the present case having made no such demand, but having merely demanded payment for the damages caused by the delay, it was held that he was not entitled to recover. Missouri, K. & T. v. Foote (Okla.), 149 Pac., 223.

Twenty-Eight-Hour Law—Additional Time for Rest

In an action for damages to cattle by negligent delay in transportation from Worth, Mo., to Chicago, the plaintiffs' theory was that, as experienced shippers, they knew that the cattle arrived at Galesburg at from 6 to 9 a. m., and obtain 11 hours' freedom from the cars, and present a good appearance on their arrival in Chicago next day; but owing to a delay in transit, they did not arrive in Galesburg until 10 or 11 a. m., and were unloaded in the heat of the day. It was admitted by the plaintiffs that the cattle were transported from Worth to Chicago in the usual time, and got over five hours rest at Galesburg. It was held by the Kansas City Court of Appeals that the railroad had done all that was required of it under the 28-hour law, and its failure to give the additional time for rest anticipated by the shippers did not render it liable, in the absence of a contract stipulation relative to such additional time. Kent v. C. B. & Q. (Mo.), 176 S. W., 1,104.

Interstate Shipments—Limitation of Liability—Change After Loss Is Discrimination

A contract for the shipment of horses recited that in consideration of the lower of two rates being paid, the railroad's liability should not exceed $100 for each horse. The shipment being interstate was therefore governed by the federal law. One of the horses had a leg broken during transit, and was killed. The railroad agreed to settle the owner's claim by paying $172. the stipulated value of the horse. In an action for the loss of the horse, the Kansas Supreme Court holds that the limitation in such a contract becomes a part of the rate, and the parties cannot, by any agreement after a loss has occurred, change the limitation and arrange for the payment of a greater amount than the value as fixed in the contract. To hold otherwise would be giving him an advantage over other shippers and constitute an unlawful discrimination. Donohoo Horse & Mule Company v. Missouri, K. & T. (Kan.), 149 Pac., 436.

Additional Taking of Land for New Location of Right of Way—Measure of Damages

A railroad had acquired a right of way across a farm by a deed which provided that the consideration named therein covered all damages to the adjoining lands incident to the construction and operation of the railroad. The right of way was 100 ft. wide, consisting of 2.91 acres, and the consideration was $750. It afterwards began a new survey to swing the road east from a point in the farm, necessitating the taking of a small triangular piece of the land, amounting to .91 of an acre. In proceedings to condemn this land the Kentucky Court of Appeals holds that the measure of damages was the difference between the value of the farm with the railroad constructed and operated on the original right of way and its value with the railroad constructed on the new location, and it was error to admit evidence, instruct the jury, and permit argument by the owner's attorney on the theory that the damages caused by the construction of any railroad on the farm could be recovered. In view of the consideration of $750 for the original 2.91 acres conveyed, a verdict for $1,200 for the .91 taken for the new location was manifestly excessive. L. & N. v. Wilson (Ky.), 176 S. W., 980.

Railway Officers

Operating

C. Gavin has been appointed trainmaster of the Northern Alabama, with headquarters at Sheffield, Ala.

C. A. Hodgman has been appointed superintendent of car service of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn.

J. H. Elliott, superintendent of the New Orleans division of the Texas & Pacific, has been appointed general superintendent, with headquarters at Dallas, Tex., succeeding J. E. Taussig, resigned.

J. P. Falk, general yardmaster of the Chicago, Burlington & Quincy at Kansas City, Mo., has been appointed superintendent of terminals, with headquarters at Kansas City, succeeding O. C. Hill, resigned.

W. R. Cahill, formerly superintendent of the Nebraska division of the Union Pacific, has been appointed superintendent of the Texas division of the Missouri, Kansas & Texas, with headquarters at Wichita Falls, Tex.

O. C. Hill, formerly superintendent of terminals for the Chicago, Burlington & Quincy, has been appointed general superintendent of the Kansas City Terminal Railway, succeeding R. A. Barrett. Mr. Hill's headquarters are at Kansas City, Mo.

Fred J. Stimson, whose appointment as superintendent of the Zanesville division of the Central system of the Pennsylvania Lines West of Pittsburgh, with headquarters at Zanesville, Ohio, has been announced, was born at Kalamazoo, Mich., on October 30, 1868. After graduating from the Kalamazoo high school in 1886, he entered the employ of an engineering company at Knoxville, Tenn. He entered railway service in November, 1888, with the Grand Rapids & Indiana as clerk in the office of the claim and timber agent. The following year he worked as rodman on survey and construction work. In June, 1890, he entered the employ of the Colorado Midland as assistant engineer on preliminary and location surveys, which position he held until December, 1892. He returned to the Grand Rapids & Indiana in March, 1893, as assistant roadmaster and on January 1, 1904, was appointed division engineer, from which position he is now promoted.

F. J. Stimson

Traffic

Leon O. Dismuke, city passenger agent of the Houston & Texas Central at Dallas, Tex., has been appointed division passenger agent, with headquarters at Dallas.

Roy Hinchman, formerly agent of the Baltimore & Ohio at Athens, Ohio, has been appointed general passenger agent of the Cincinnati, Hamilton & Dayton, with headquarters at Dayton, Ohio.

C. B. Sloat, assistant general passenger agent of the Chicago, Rock Island & Pacific, Little Rock, Ark., has been appointed general passenger agent, with headquarters at St. Louis, Mo., succeeding George H. Lee, who has resigned to go to the Lehigh Valley.

John S. Talbot, recently general agent of the Chicago & North Western, has been appointed commissioner for the Association of Lake Lines, with headquarters at Cleveland, Ohio, succeeding F. E. Signer, who resigned last December to enter the service of the Lehigh Valley.

George H. Lee, whose appointment as general passenger agent of the Lehigh Valley, with headquarters at New York, has already been announced in these columns, was born at Mt. Morris, N. Y., and was educated at Hamilton College, Clinton, N. Y. He began railway work in 1886, as a clerk in the auditor's office of the Arkansas Valley Route at Little Rock, Ark. He subsequently entered the traffic department, and for a time was in the service of the Choctaw, Oklahoma & Gulf, and other western lines until he went to the Chicago, Rock Island & Pacific. He held various positions on that road until his appointment as general passenger agent of the Third district, with headquarters at St. Louis, Mo., and on August 1, will leave that road to become general passenger agent of the Lehigh Valley, with headquarters at New York, as above noted.

G. H. Lee

Engineering and Rolling Stock

R. H. Pembroke, having resigned as chief engineer of the Coal & Coke, with headquarters at Gassaway, W. Va., that office has been abolished, and F. D. Cosner has been appointed engineer maintenance of way, assuming all duties heretofore assigned the chief engineer.

Purchasing

R. A. Lunsford has been appointed storekeeper of the Kansas City, Mexico & Orient of Texas, with headquarters at San Angelo, Tex., succeeding T. A. Pratt.

OBITUARY

Frank Roberts, president of the Valdosta, Moultrie & Western, died on July 15, at Valdosta, Ga.

Judge Henry L. Waldo, formerly solicitor for New Mexico for the Atchison, Topeka & Santa Fe, died recently in Kansas City, Mo.

E. E. Smythe, formerly general freight agent of the Kansas City Southern, died in Kansas City, Mo., of injuries received in an automobile accident on May 5.

G. Aldrich, supervisor of bridges and buildings of the New York, New Haven & Hartford, with headquarters at Boston, Mass., died on July 9, after an operation for cancer of the stomach.

Theophilus P. Brown, formerly, from 1883 to 1885, president of the Toledo & Indianapolis, and later president and general manager of its successor, the Toledo, Columbus & Southern, now a part of the Toledo & Ohio Central, died recently in Toledo, Ohio, at the age of 80.

Arthur Brown, who was division superintendent of the Maine Central previous to 1875, and from 1876 was superintendent of the Bangor & Piscataquis until that road was taken over by the Bangor & Aroostook in 1892, when he retired from railway work, died on July 19 at his home in Bangor, Maine, at the age of 95.

Equipment and Supplies

LOCOMOTIVE BUILDING

THE MINNESOTA STEEL COMPANY has ordered 3 saddle tank locomotives from the H. K. Porter Co.

THE ALABAMA & TOMBIGBEE has ordered one Consolidation type locomotive from the Lima Locomotive Corporation.

THE CZARNIKOW-RIONDO COMPANY, 112 Wall street, New York, has ordered one Mogul type locomotive for the Gomez Mena Plantation Company from the American Locomotive Company. This locomotive will have 18 by 24-in. cylinders and 50-in. driving wheels.

CAR BUILDING

THE ILLINOIS STEEL COMPANY is in the market for 10 tank cars.

THE EL PASO & SOUTHWESTERN has ordered two dining cars from the Pullman Company.

THE NEVADA NORTHERN has ordered 50 Ingoldsby dump cars from the Pullman Company.

THE PHILADELPHIA & READING is said to be contemplating the purchase of a number of freight cars.

THE TEMISKAMING & NORTHERN ONTARIO has ordered four passenger cars from the Pullman Company.

THE COLD BLAST TRANSPORTATION COMPANY has postponed its inquiry for 300 refrigerator cars for the present.

THE CHICAGO & NORTH WESTERN has ordered 300 automobile cars from the American Car & Foundry Company.

THE NEW YORK CENTRAL is said to have issued inquiries for 1,500 box and 500 automobile cars for the Michigan Central.

THE FRENCH GOVERNMENT is reported to have ordered 200 armored cars from the Standard Steel Car Company. This item has not been confirmed.

THE RUSSIAN GOVERNMENT has exercised its option for 200 cars with the Pressed Steel Car Company, thereby increasing that company's order to 7,000 cars, and is also reported to have given it an additional order for 2,000 cars.

THE BALTIMORE & OHIO has divided an order for 2,000 hopper cars among the American Car & Foundry Company, the Pressed Steel Car Company and the Cambria Steel Company, and ordered 35 coaches, 5 combination passenger and baggage cars, 2 baggage and mail cars, 4 baggage cars, 2 café-parlor cars and 2 café coaches from the Pullman Company.

IRON AND STEEL

THE GULF, FLORIDA & ALABAMA has ordered 750 tons of steel from the American Bridge Company.

THE ITALIAN GOVERNMENT is reported to be negotiating with an American company for the purchase of 20,000 tons of rails.

THE MINERAL RANGE has ordered 289 tons of steel from the American Bridge Company for an approach to a bridge at Houghton, Mich.

THE NEW YORK PUBLIC SERVICE COMMISSION, FIRST DISTRICT, has ordered 35,500 tons of open hearth rails and 2,400 tons of open hearth guard rails from the Bethlehem Steel Products Company for use on the lines of the dual subway system of New York City. The Public Service Commission will open bids on August 18 for the supply of special work needed on the rapid transit lines in the Borough of Queens.

MACHINERY AND TOOLS

THE SOUTHERN PACIFIC is reported to be preparing specifications for a large number of machine tools This item has not been confirmed.

Supply Trade News

The Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has taken a small order for tractor trucks for Russia.

The Hall Switch & Signal Company, New York, is reported to have received an order for shells aggregating $1,000,000 in value.

The Burd High Compression Ring Company, Rockford, Ill., is beginning the installation of machinery in an additional new factory building.

The U. S. Metal and Manufacturing Company, New York, has been appointed railroad sales agent for the injector sand blast apparatus manufactured by J. M. Betton.

Thomas J. McMaster has been appointed district sales manager in the western territory for the Diamond Power Specialty Company of Detroit, Mich., with headquarters at 809 Ashland block, Chicago.

L. S. Love, formerly head of the L. S. Love Machinery Company, has become associated with the Sherritt & Stoer Company, Inc., Philadelphia, Pa., dealers in machine tools and railway and machine shop equipment.

Louis F. Beckert, a salesman in the railway equipment division of the railway and lighting department of the Westinghouse Electric & Manufacturing Company, died suddenly of typhoid fever at his home in Pittsburgh on July 7.

Roy C. McKenna, of the McKenna Brothers Brass Company, Pittsburgh, Pa., has been elected president of the Vanadium-Alloys Steel Company, also of Pittsburgh. He succeeds E. T. Edwards, who has resigned to accept the presidency of the Latrobe Electric Steel Company, Latrobe, Pa., but who will remain a member of the board of directors of the Vanadium-Alloys Steel Company. Mr. McKenna brings to his new position the experience gained in the years he has been the head of the mechanical department of the McKenna Brothers Brass Company. He graduated from the University of Pittsburgh in 1903 in electrical and mechanical engineering. His family has been identified with the high-speed steel trade ever since the year 1902.

R. C. McKenna

It is reported that the Baldwin Locomotive Works, which has recently taken a contract for about $80,000,000 worth of shells, will incorporate a new company to be known as the Eddystone Munitions Company, and spend about $1,500,000 for another new plant at Eddystone.

W. Spencer Robertson, assistant to Leigh Best, vice-president of the American Locomotive Company, has been appointed secretary of the company, effective July 14, succeeding C. B. Denny, formerly treasurer and secretary, who has resigned. Mr. Robertson has been in the service of the American Locomotive Company since May 1, 1908. He was born in Brooklyn, January 10, 1885, and from November, 1900, until 1908 he was associated with the law office of Simpson, Thacher & Bartlett, New York.

The publicity department of the Pennsylvania Railroad has issued the following: It can be authoritatively stated that the Pennsylvania Railroad Company has not given an option on its

Cambria Steel Company's stock to Mr. Frick, nor is there any basis for the reported consolidation of the Cambria and Pennsylvania Steel Companies. When Mr. Donner became chairman of the board of the Pennsylvania Steel Company, he was given an option on a portion of the Pennsylvania Company's holdings, both in the Cambria and Pennsylvania Steel Companies.

Negotiations now are pending between the Canadian Car & Foundry Company and the allies for an additional contract for war supplies. It is understood the amount of new business, which it is believed will be closed shortly, is about $6,000,000. First shipments to Europe of completed shells called for under the terms of the company's original $83,000,000 contract are expected to be made from the Kingsland, N. J., plant early in Augst. That plant was erected as an assembling factory for the parts which are being turned out by about fifty manufacturers in the eastern section of this country.

The Locomotive Stoker Company, Schenectady, N. Y., has purchased the coal pusher business and taken exclusive licenses under all of the patents covering mechanical coal pushers for locomotive tenders owned by Ryan, Galloway & Co., Chicago, which, with the patents already controlled, will enable the Locomotive Stoker Company to add a complete line of mechanical coal pushers for all classes of locomotive tenders to its rapidly growing stoker business. Edward Ryan, of Ryan, Galloway & Co., has entered the employ of the Locomotive Stoker Company as mechanical expert.

TRADE PUBLICATIONS

CONDUIT.—The Sprague Electric Works, of the General Electric Company, New York, has issued a four-page folder, naming the good qualities of Sprague duct superior enameled conduit and giving price lists and other data.

GEARS, PINIONS AND TROLLEYS.—The R. D. Nuttall Co., Pittsburgh, Pa., has recently issued catalog No. 12 relative to gears, pinions and trolleys for mine and industrial locomotives, and catalog No. 13 relative to like equipment for electric railways. Each booklet contains illustrations and specifications of the apparatus described, there being included tables giving the sizes and list prices of the gears and pinions which may be obtained.

VERTICAL GAS ENGINE.—The National Transit Company, Oil City, Pa., has recently issued bulletin No. 401, in which is illustrated and briefly described a vertical four-cycle, air cooled gas engine. A unique feature in the design of this engine is the use of the exhaust to induce the circulation of air through the cooling flanges on the cylinder. Bulletins Nos. 104 and 105 also recently issued are devoted to a line of the Duplex direct acting type steam pumps, the former outside center packed and the latter of the packed piston type. These pumps are designed for service from 200 lb. to 1,000 lb. pressure per sq. in.

FLEXIBLE JOINTS.—Barco Flexible Joints is the title on the cover of a loose-leaf booklet recently issued by the Barco Brass & Joint Company, Chicago. In this booklet are contained catalog No. 10, relating to blow-off, terminal coach heating and wash-out nozzle connections; catalog No. 20 relating to roundhouse blower connections and specifications and the Barco automatic smokebox blower fitting; catalog No. 30, entitled "Barco Flexible Joints, Catalog and Descriptive Bulletin," and catalog No. 40 relating to engine tender connections for steam, air and oil and car connections for steam and air.

RAILWAY CONSTRUCTION IN ENGLAND.—According to the Railway News, the Gowdall-Braithwell Railway, 22 miles in length, intended to form an additional route from new South Yorkshire collieries to the Humber, is now approaching the final stages. The line was originally promoted by the Hull & Barnsley Railway, with the support of the Midland Railway, to which trackage rights were to be given, and which was to find part of the capital. Later the North-Eastern Railway also obtained trackage rights and other advantages, while opposition by the Great Central resulted in the new line being vested in the Hull & Barnsley and Great Central companies. The Act was obtained in 1909, contracts were let the following year, and the work of construction commenced in 1911. The rails have now been laid, and only a few finishing touches are required to complete the work.

Railway Construction

ARTESIAN BELT.—It is stated that work to complete the extension from Christine, Tex., south to Crowther, 16 miles, on which grading work is already finished, will be carried out soon. Plans have been made to extend the line southeast via Beeville to some point on the Gulf coast. The company now operates a 43-mile line from Macdona south to Christine.

CANADIAN NORTHERN.—Construction work is reported resumed on the line to St. Paul de Metis, Alta. About 14 miles of grading has already been finished; D. F. McArthur is the contractor. (October 22, p. 779.)

CANADIAN NORTHERN QUEBEC.—The new location of the projected extension of the old Montford & Gatineau Colonization Railway has been approved from Huberdeau, Que., to a point near St. Remi d'Amherst. The route is along the east bank of the Rouge river to the Argenteuil county line, thence crossing to the west side of the river joins the original approved route, about six miles from Huberdeau. (January 1, p. 39.)

CENTRAL CANADA.—A sub-contract is reported let to J. Timothy for grading the last 22 miles to Peace River Crossing, Alta. Track laying has already been completed, it is said, to mile 28 from McLennan, where connection is made with the Edmonton, Dunvegan & British Columbia. The grading work yet to be carried out will be heavy. It is expected that the grading work will be finished by October 1, and track laying completed and the line ready for operation this year.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—New double track from a point north of Huffman, Tenn., to north of Sunbright, 2.9 miles, was placed in service on July 15. The company now has a total of 129 miles of double track in service between Cincinnati, Ohio, and Chattanooga, Tenn.

CORPUS CHRISTI TRACTION.—Incorporated in Texas with $100,000 capital to build and operate an interurban system of railways. The plans call for building lines north, west and south of Corpus Christi. The incorporators include J. H. Caswell, San Diego, Cal.; J. R. Hopkins, G. Boone, O. P. Metcalf, W. E. Pope, Corpus Christi, and A. McEvoy, New York

INTERCOLONIAL.—A contract has been given to J. W. McManus & Co., Moncton, N. B., it is said, for building an industrial spur at Bathurst, N. B., 2.3 miles long.

LOUISIANA ROADS.—Surveys are being made by the Cady Lumber Company, McNary, La., it is said, for a line to be built to connect with the Texas & Pacific and the Chicago, Rock Island & Pacific at Lamourie.

MANITOBA ROADS (Electric).—H. W. Adcock, Winnipeg, Man., is said to be back of a project to build a line from Winnipeg, Man., east to Transcona, about 10 miles. Gasolene motor cars are to be used for the motive power. The line is to be finished by October of this year, and early in 1916 is to be extended to the south side of the town.

MERIDIAN & MEMPHIS.—A contract is reported let to C. G. Kershaw, Birmingham, Ala., for work on this line involving the handling of about 200,000 cu. yd. of earth. The company started work early this year on an extension from Union, Miss., west to Sebastopol, about 13 miles. This line will probably be extended to Carthage, about 30 miles from Union. (April 30, p. 955.)

NEW YORK STATE RAILWAYS (Electric).—The New York Public Service Commission, Second district, has approved the extension of the New York State Railway's lines from Rochester, N. Y., into the town of Greece, Monroe county, to connect the company's tracks, with a loop crossing Dewey avenue in Greece and crossing the Kodak branch of the New York Central's tracks.

NEW YORK SUBWAYS.—The New York Public Service Commission, First district, has approved plans and form of contract for the erection of steel, construction of tracks, etc., on the Broadway elevated railroad, in the borough of Brooklyn, between Myrtle avenue and Aberdeen street, in connection with the third-tracking of that line. The commission also approved the

plans and form of contract for the supply of structural steel for widening and strengthening the Myrtle avenue elevated railroad from Willoughby avenue to Wyckoff avenue for the third-tracking of that line.

The contract for the installation of tracks on the New Utrecht avenue elevated railroad, in the borough of Brooklyn, has been awarded to Ward & Tully, Incorporated, the lowest bidders, who offered to do the work for $71,355. (July 16, p. 143.)

Post & McCord, Incorporated, submitted the lowest bid at $877,959 for the construction of Section 1 of Route No. 49 of the Culver rapid transit line in the borough of Brooklyn. Section 1 extends from Thirty-seventh street to the intersection of Gravesend avenue and Bay parkway (Twenty-second avenue). (July 2, p. 39.)

PHILADELPHIA, PA. ROADS.—Bids are wanted, until August 16, by A. M. Taylor, director, Department of City Transit, Philadelphia, Pa., for the construction of the city hall section station of the Broad street subway. This section will extend under city hall and the Market street subway, and will be about 700 ft. long. Bids are also wanted on the same date for the construction of concrete column foundations and piers for about 26,000 lineal ft. of elevated railway in Front street, Kensington avenue and Frankford avenue. (July 16, p. 143.)

ST. LOUIS RAILWAY & DOCK COMPANY.—Incorporated in Missouri with $250,000 capital, to build a terminal railroad in St. Louis county and the city of St. Louis, Mo., about 25 miles long. The projected route is from a point north of the St. Louis city limits near the Columbia Bottom road in a general southerly direction to a point near Van Buren and Catalan streets. The incorporators include W. J. Holbrook, J. T. Moore, E. W. Bannister, D. A. Bowman, J. Hill and H. F. Bell, all of St. Louis, Mo.

TAMPA, CLEARWATER & ISLAND CITY.—Organized in Florida with $100,000 capital to build a line from the eastern limits of Clearwater to Clearwater Key, about 2.75 miles. The work includes the construction of a bridge about two miles long to be of pile, timber and concrete construction. Bids for a 50-ft. steel draw are wanted, it is said, until August 7. E. W. Parker, president and general manager, Tampa; G. R. Smoyer, vice-president, Clearwater; E. T. Roux, secretary, Plant City, and H. W. Bivins, treasurer, Clearwater.

RAILWAY STRUCTURES

BAY CITY, TEX.—At a meeting of the officials of the Gulf, Colorado & Santa Fe, the Southern Pacific and the St. Louis & San Francisco, with the business men of Bay City, on July 8, a committee was appointed to select a site for the union station to be built by the three railroads entering the city.

CHICAGO, ILL.—The city council has passed a five-year ordinance permitting the Chicago & Western Indiana to build a temporary one-story addition to the Dearborn station on Polk street. It will be a brick structure about 40 ft. wide and 60 or 70 ft. deep.

GALESBURG, ILL.—The Chicago, Burlington & Quincy is rebuilding its blacksmith shop at this place, which was recently destroyed by fire. The work is being done by company forces.

MANITOU RAPIDS, MAN.—A contract for the substructure of the cantilever bridge to be built for the Hudson Bay Railway, over the Nelson river at Manitou Rapids, has been let, it is said, to Robert McDonald, Winnipeg, Man.

NEW YORK.—Bids for the construction of station finish on the new rapid tranist lines in the borough of Queens are wanted by the New York Public Service Commission, First district, on August 3, for the junction section on the Queensboro bridge plaza, for the elevated railroad from that point to Corona, and for the extension of the Queensboro subway through Davis street and Ely avenue, and on August 4, for the elevated railroad from the Queensboro bridge to Astoria.

OAKLAND, CAL.—The Southern Pacific is considering the erection of a suburban station on its terminal property in Oakland. No plans have been prepared at present for such a building.

PILOT ROCK JUNCTION, ORE.—The Oregon-Washington Railroad & Navigation Company has awarded the contract for the grading on its new freight terminal at this place to Twohy Brothers Company, Portland, Ore. There will be about 100,000 cu. yd. of grading required.

Railway Financial News

EL PASO & SOUTHWESTERN.—The Corporation Commission of Arizona has approved the issuance of $16,627,000 bonds by the El Paso & Southwestern. These bonds are to be used for refunding purposes.

HOUSTON & TEXAS CENTRAL.—See Missouri, Oklahoma & Gulf.

INTERNATIONAL & GREAT NORTHERN.—The receivers have filed injunction proceedings against the state tax board of Texas to restrain the board from certifying to tangible assets totaling $10,000,000. This valuation the receivers claim is excessive.

MISSOURI, OKLAHOMA & GULF.—The Houston & Texas Central has given the Missouri, Oklahoma & Gulf trackage rights from Sherman, Tex., to Plano, and the St. Louis Southwestern has given the Missouri, Oklahoma & Gulf trackage rights from Plano to Ft. Worth and Dallas. It is said that through train service between Ft. Worth and Dallas and Joplin, Mo., will be begun in the near futre.

PENNSYLVANIA RAILROLD.—See official statement in regard to Pennsylvania Steel Company and Cambria Steel Company stock in Supply Trade News.

ST. LOUIS SOUTHWESTERN.—See Missouri, Oklahoma & Gulf.

SOUTHERN RAILWAY.—The Tennessee railroad commission has approved the issue of $3,500,000 Atlanta & Charlotte Air Line bonds, the proceeds of the sale of which are to be used to pay for the double-tracking of the line between Spartanburg, S. C., and Central, 56 miles, and between New Holland, Ga., and Cornelia, 21 miles.

WABASH.—The Wabash was sold under foreclosure at St. Louis on July 21. This, of course, is the preliminary step to the putting through of the reorganization plan, described in the issue of May 7, page 978. The price, which, of course, was subject to the liabilities of the company, was $18,000,000, which covered the receivers' liabilities.

CONSTRUCTION WORK ON BENGUELA RAILWAY, ANGOLA.—The war has delayed construction work on the Benguela Railway, extending from Lobito Bay, Angola, into the interior. Plate-laying has been entirely suspended for the present, but the construction of earthworks is being steadily pushed forward, and the bed is now ready for rails to be laid to a distance of 40 miles from the present railhead. Only a relatively small amount of work remains to be done in order to complete the road as far as Belmonte, capital of the Bihe district, 390 miles from Lobito. It may, however, be many months before the rails and other material are received. The railway has been in operation as far as Chinguar, 322 miles from Lobito, since the end of 1913.

FROM HOLLAND TO BELGIUM.—The Railway Gazette (London) in a recent issue, quoting from an Antwerp paper, gives interesting particulars of the difficulties attending a railway journey between Holland and Belgium under existing conditions. A German passport office, served by German officials has been opened at the frontier town of Roosendal. The first step on the journey into Belgium is to obtain the passport, which costs a trifle over 45 fr. ($9.00). The passenger then makes his way to the little station where all refreshments are sold at famine prices, and waits patiently for the train which rarely leaves at the appointed time. The traffic over this section of line would appear to be relatively heavy, since it is said that on the average from 600 to 700 persons leave daily for Antwerp, while about 400 to 500 journey in the reverse direction. The actual Belgian frontier station is at Esschen, where the line is patrolled by sentinels. Here each coach is inspected. The examination, although latsing two hours, is described as not being "very severe." After this formality passengers change into another train, which eventually brings them into Antwerp, the actual time of arriving being a matter on which it is impossible to speculate in advance. At Antwerp the male passengers are allowed to leave the station as soon as their papers are found to be in order, but the women are first searched, a process to which they also have to submit at the beginning of the journey.